

## Julian David Olden

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### Current Position

Associate Professor, School of Aquatic and Fishery Sciences, University of Washington (2011-)  
Assistant Professor, School of Aquatic and Fishery Sciences, University of Washington (2006-2011)

### Education

Ph.D. in Ecology, Colorado State University (2000-2004). Dissertation title "Fish fauna homogenization of the United States, life-history correlates of native extinctions and non-native invasions in the American Southwest, and the bi-directional impacts of dams in the American Southeast"

M.Sc. in Zoology, University of Toronto (1998-2000). Thesis title "Predictive models for freshwater fish community composition"

B.Sc. in Zoology, University of Toronto (1994-1998)

### Recent Positions

Adjunct Research Fellow, Australian Rivers Institute, Griffith University (2006-)

David H. Smith Postdoctoral Conservation Fellowship, Center for Limnology, University of Wisconsin (2005-2006). Title "Conservation planning and prioritization for invasive species: Forecasting invasions and their impacts in freshwater systems using process-based modeling"

### Publications

*Published*

#### In press

Olden, J.D., Kennard, M.J. and B.J. Pusey. In press. A unifying framework to hydrologic classification with a review of methodologies and applications in ecohydrology. *Ecohydrology*. DOI: 10.1002/eco.251.

Mims, M.C., and J.D. Olden. In press. Life history theory predicts streamflow effects on fish assemblage response to hydrologic regimes. *Ecology*.

Pool, T.K., and J.D. Olden. In press. Taxonomic and functional homogenization of a globally endemic desert fish fauna. *Diversity and Distributions*.

Jaeger, K, and J.D. Olden. In press. Electrical resistance sensor arrays as a means to quantify longitudinal connectivity of rivers. *River Research and Applications*.

Reidy Liermann, C.A. Olden, J.D., Beechie, T.J., Kennard, M.J., Skidmore, P.B., Konrad, C.P. and H. Imaki. In press. Hydrogeomorphic classification of Washington State rivers to support emerging environmental flow management strategies. *River Research and Applications*.

Lawler, J.J. and J.D. Olden. In press. Reframing the debate over managed relocation. *Frontiers in Ecology and the Environment*.

- Strecker, A.L., Olden, J.D., Whittier, J.B., and C.P. Paukert. In press. Defining conservation priorities for freshwater fishes according to taxonomic, functional, and phylogenetic diversity. *Ecological Applications*.
- Konrad, C.P., Olden, J.D., and 10 other authors. Large-scale flow experiments for managing rivers. *BioScience*.
- Poff, N.L., Olden, J.D., and D.L. Strayer. In press. Climate change and freshwater extinction risk. In *Saving a Million Species: Extinction Risk from Climate Change*, ed. L. Hannah.
- Stewart-Koster, B., Olden, J.D., Kennard, M.K., Pusey, B.J. Boone, E.L., Douglas, M. and S. Jackson. In press. Fish response to the temporal hierarchy of the natural flow regime in the Daly River, northern Australia. *Journal of Fish Biology*.
- Bradley, B.A., Blumenthal, D.M., Early, R.I., Grosholz, E.D., Lawler, J.J., Miller, L.P., Sorte, C.J.B., D'Antonio, C.M., Diez, J.M., Dukes, J.S., Ibanez, I. and J.D. Olden. In press. Global change, global trade, and the next wave of plant invasions. *Frontiers in Ecology and the Environment*.
- Erös, T., Olden, J.D., Schick, R.S., Schmera, D., and Fortin, M-J. In press. Characterizing connectivity relationships in freshwaters using patch-based graphs. *Landscape Ecology*.

## 2011

- Olden, J.D., Vander Zanden, M.J., and P.T.J. Johnson. 2011. Assessing ecosystem vulnerability to invasive rusty crayfish (*Orconectes rusticus*). *Ecological Applications* 21: 2587-2599.
- Lawrence, D.J., Larson, E.R., Reidy Liermann, C.A., Mims, M.C., Pool, T.K., and J.D. Olden. 2011. National parks as protected areas for U.S. freshwater fish diversity. *Conservation Letters* 4: 364-371.
- Thomsen, M.S., Olden, J.D., Wernberg, T., Griffin, J.N. and B.R. Silliman. 2011. A broad framework to organize and compare ecological invasion impacts. *Environmental Research* 111:899-908.
- Kostyack, J., Lawler, J.J., Goble, D.D., Olden, J.D., and J.M. Scott. 2011. Beyond reserves and corridors: policy solutions to facilitate the movement of plants and animals in a changing climate. *BioScience* 61: 713-719.
- Carey, M.P., Sanderson, B.L., Friesen, T.A., Barnas, K.A. and J.D. Olden. 2011. Smallmouth bass in the Pacific Northwest: A threat to native species; a benefit for anglers. *Reviews in Fisheries Science* 19:305-315.
- Biggs, C.R. and J.D. Olden. 2011. Multi-scale habitat occupancy of invasive lionfish (*Pterois volitans*) in coral reef environments of Roatan, Honduras. *Aquatic Invasions* 6:447-453.
- Maranto, C.J., Parrish, J.K., Herman, D.P., Punt, A.E., Olden, J.D., Brett, M.T. and D. D. Roby. 2011. Use of fatty acid analysis to determine dispersal of Caspian terns in the Columbia River Basin, U.S.A. *Conservation Biology* 25:736-746.
- Larson, E.R., Olden, J.D., N. Usio. 2011. Shoreline urbanization interrupts the relative contribution of allochthonous subsidies to a benthic consumer over a gradient of lake size. *Biology Letters* 7:551-554.
- Cucherousset, J. and J.D. Olden. 2011. Ecological impacts of non-native freshwater fishes. *Fisheries* 36:215-230.
- Schlaepfer, M.A., Sax, D.F. and J.D. Olden. 2011. The potential conservation value of non-native species. *Conservation Biology* 25:428-437.
- Thomsen, M.S., Wernberg, T., Olden, J.D., Griffin, J.N. and B.R. Silliman. 2011. A framework to study the context-dependent impacts of marine invasions. *Journal of Experimental Marine Biology and Ecology* 400: 322-327.

- Olden, J.D., Lockwood, J.L. and C.L. Parr. 2011. Species invasions and the biotic homogenization of faunas and floras. Pages 224-243 in *Conservation Biogeography*, ed. Whittaker, R.J. and R.J. Ladle. Wiley-Blackwell.
- Olden, J.D., Kennard, M.K., Lawler, J.J., and N.L. Poff. 2011. Challenges and opportunities for implementing managed relocation of species for freshwater conservation. *Conservation Biology* 25: 40-47.
- Larson, E.R. and J.D. Olden. 2011. The state of crayfish in the Pacific Northwest. *Fisheries* 36:60-73.
- Strecker, A.L., Campbell, P.M. and J. D. Olden. 2011. The aquarium trade as an invasion pathway in the Pacific Northwest. *Fisheries* 36:74-85.
- Paukert, C.P., Pitts, K. L., Whittier, J.B. and J.D. Olden. 2011. Development and assessment of a landscape-scale ecological threat index for the Lower Colorado River Basin. *Ecological Indicators* 11:304-310.

## 2010

- Larson, E. R., Olden, J.D., and N. Usio. 2010. Decoupled conservatism of Grinnellian and Eltonian niches in an invasive arthropod. *Ecosphere* 1(6):art16. doi:10.1890/ES10-00053.1
- Pool, T.P., Olden, J.D., Whittier, J.B. and C. P. Paukert. 2010. Environmental drivers of fish functional diversity and composition in the Lower Colorado River Basin. *Canadian Journal of Fisheries and Aquatic Sciences* 67: 1791-1807.
- Olden, J.D. and M.J. Kennard. 2010. Intercontinental comparison of fish life-history strategies along a gradient of hydrologic variability. *Community Ecology of Stream Fishes: Concepts, Approaches, and Techniques* (Ed. Gido, K. B. and D. A. Jackson). American Fisheries Society Symposium 73: 83-107.
- Mims, M.C., Olden, J.D., Shattuck, Z.R., and N.L. Poff. 2010. Life history trait diversity of native freshwater fishes in North America. *Ecology of Freshwater Fish* 19:390-400.
- Arthington, A.H., Olden, J.D., Balcombe, S.R., and M.C. Thoms. 2010. Multi-scale environmental factors explain fish losses and refuge quality in drying waterholes of Cooper Creek, an Australian arid-zone river. *Marine and Freshwater Research* 61:842-856.
- Larson, E.R. and J.D. Olden. 2010. Latent extinction and invasion risk of crayfishes in the southeastern United States. *Conservation Biology* 24: 1099-1110.
- Olden, J.D. 2010. Current velocity shapes the functional connectivity of benthiscapes to stream insect movement. Pages 351-373 in *Modelling Perception with Artificial Neural Networks* (Ed. Tosh, C. and Ruxton, G.). Cambridge University Press.
- Olden, J.D., Kennard, M.K., Leprieur, F., Tedesco, P.A., Winemiller, K.O and E. García-Berthou. 2010. Conservation biogeography of freshwater fishes: past progress and future directions. *Diversity and Distributions* 16:496-513.
- Olden, J.D. and R.J. Naiman. 2010. Incorporating thermal regimes into environmental flows assessments: modifying dam operations to restore freshwater ecosystem integrity. *Freshwater Biology* 55: 86-107.
- Neff, B.D. and J.D. Olden. 2010. Not so fast: Inflation in impact factors contributes to apparent improvements in journal quality. *BioScience* 60: 455-459.
- Solomon, C.T., Olden, J.D., Johnson, P.T.J., Dillon, R.T., and M.J. Vander Zanden. 2010. Distribution and community-level effects of the Chinese mystery snail (*Bellamya chinensis*) in northern Wisconsin lakes. *Biological Invasions* 12:1591-1605.
- Beechie, T.J., Sear, D.A., Olden, J.D., Pess, G.R., Buffington, J.M., Moir, H., Roni, P., and M.M. Pollock. 2010. Process-based principles for restoring river ecosystems. *BioScience* 60: 209-22.

- Kennard, M.J., Pusey, B.J., Olden, J.D., Mackay, S.J., Stein, J.L., and N. Marsh. 2010. Ecohydrological classification of natural flow regimes to support environmental flow assessments: an Australian case study. *Freshwater Biology* 55: 171-193.
- Marr, S.M., Marchetti, M.P., Olden, J.D., García-Berthou, E., Morgan, D.L., Arismendi, I., Day, J.A., Griffiths, C.L. and P.H. Skelton. 2010. Freshwater fish introductions in Mediterranean-climate regions: are there commonalities in the conservation problem? *Diversity and Distributions* 16:606-619.
- Kennard, M.J., Mackay, S.J., Pusey, B.J., Olden, J.D. and N. Marsh. 2010. Quantifying uncertainty in estimation of hydrologic metrics for ecohydrological studies. *River Research and Applications* 26: 137-156.
- Larson, E.R., Busack, C.A., Anderson, J.D. and J.D. Olden. 2010. Widespread distribution of the non-native northern crayfish (*Orconectes virilis*) in the Columbia River Basin. *Northwest Science* 84:108-111.
- Poff N.L., Richter, B.D., Arthington, A.H., Bunn, S.E., Naiman, R.J., Kendy, E., Acreman, M., Apse, C., Bledsoe, B.P., Freeman, M.C., Henriksen, J., Jacobson, R.B., Kennen, J.G., Merritt, D.M., O'Keeffe, J.H., Olden, J.D., Rogers, K., Tharme, R.E., and A. Warner. 2010. The ecological limits of hydrologic alteration (ELOHA): a new framework for developing regional environmental flow standards. *Freshwater Biology* 55: 147-170.

## 2009

- Olden, J.D., Larson, E.R. and M.C. Mims. 2009. Home-field advantage: native signal crayfish (*Pacifastacus leniusculus*) out consume newly introduced crayfishes for invasive Chinese mystery snail (*Bellamya chinensis*). *Aquatic Ecology* 43: 1073-1084.
- Olden, J.D., Adams, J.W. and E.R. Larson. 2009. First record of *Orconectes rusticus* (Girard, 1852) (Decapoda, Cambaridae) west of the Great Continental Divide in North America. *Crustaceana* 82:1347-1351.
- Johnson, P.T.J., Olden, J.D., Solomon, C. T., and M.J. Vander Zanden. 2009. Community and ecosystem effects of invasive predators and herbivores in an experimental aquatic system. *Oecologia* 159: 161-170.
- Leprieur, F. Olden, J.D., Lek, S., and S. Brosse. 2009. Contrasting patterns and mechanisms of spatial turnover for native and exotic freshwater fish in Europe. *Journal of Biogeography* 36:1899-1912.
- Hayes, N.M., Butkas, K.J., Olden, J.D., and M.J. Vander Zanden. 2009. Behavioural and growth differences between experienced and naïve populations of a native crayfish in the presence of invasive rusty crayfish. *Freshwater Biology* 54:1876-1887.
- Monroe, J.B., Baxter, C.V., Olden, J.D., P.L. Angermeier. 2009. Freshwaters in the public eye: Understanding the role of images and media in aquatic conservation. *Fisheries* 34: 581-585.
- Lockwood, J.L., Blackburn, T.M., Cassey, P., and J.D. Olden. 2009. The shape of things to come: non-native mammalian predators and the fate of island bird diversity. Pages 235-248 in *Holocene Extinctions*, ed. S.T. Turvey. Oxford University Press.
- Leprieur, F., Brosse, S., García-Berthou, E., Oberdorff, T., Olden, J.D., and C.R. Townsend. 2009. Scientific uncertainty and the assessment of risks posed by non-native freshwater fishes. *Fish and Fisheries* 10:88-97.
- Gao, Y., Vogel, R.M., Kroll, C.N., Poff, N.L. and J.D. Olden. 2009. Development of representative indicators of hydrologic alteration. *Journal of Hydrology* 374:136-147.

Fox, H. E., Kareiva, P., Silliman, B., Hitt, J., Lytle, D.A., Halpern, B.S., Hawkes, C.V., Lawler, J., Neel, M., Olden, J.D., Schlaepfer, M.A., Smith, K. and H. Tallis. 2009. Why do we fly? Ecologists' sins of omission. *Frontiers in Ecology and the Environment* 7:294-296.

## 2008

Olden, J.D., Poff, N.L., and K.R. Bestgen. 2008. Trait synergisms and the rarity, extirpation and extinction risk of native fishes in the Lower Colorado River Basin. *Ecology* 89: 847-856.

Olden, J.D., Kennard, M.J., and B.J. Pusey. 2008. Species invasions and the changing biogeography of Australian freshwater fishes. *Global Ecology and Biogeography* 17: 25-37.

Olden, J.D., Lawler, J.J., and N.L. Poff. 2008. Machine learning methods without tears: a primer for ecologists. *The Quarterly Review in Biology* 83: 171-193.

Olden, J.D. 2008. Biotic Homogenization. In: Encyclopedia of Life Sciences (ELS). John Wiley & Sons, Ltd: Chichester. DOI: 10.1002/9780470015902.a0020471.

Johnson, P.T.J., Olden, J.D., and M.J. Vander Zanden. 2008. Dam invaders: Impoundments facilitate biological invasions in freshwaters. *Frontiers in Ecology and the Environment* 6: 357-363.

Vander Zanden, M.J. and J.D. Olden. 2008. A management framework for preventing the secondary spread of aquatic invasive species. *Canadian Journal of Fisheries and Aquatic Science* 65: 1512-1522.

Rahel, F.J. and J.D. Olden. 2008. Assessing the effects of climate change on aquatic invasive species. *Conservation Biology* 22: 521-533.

Larson, E.R. and J.D. Olden. 2008. Do schools and golf courses represent emerging pathways for crayfish invasions? *Aquatic Invasions* 3:465-468.

Monroe, J.B. and J.D. Olden. 2008. Aqua-rock climbers. *Natural History*. May 2008: 64.

Lytle, D.A., Olden, J.D., and L. E. McMullen. 2008. Drought-escape behaviors of aquatic insects may be adaptations to highly variable flow regimes characteristic of desert rivers. *The Southwestern Naturalist* 53: 399-402.

Cassey, P., Lockwood, J.L., Olden, J.D., and T.M. Blackburn, T.M. 2008. The varying role of population abundance in structuring indices of biotic homogenization. *Journal of Biogeography* 35: 884-892.

Lee, H., Reusser, D.A., Olden, J.D., Smith, S.S, Graham, J., Burkett, V., Dukes, J.S., Piorkowski, R.J., and J. McPhedran. 2008. Establishing integrated monitoring and information systems for predicting and managing aquatic invasive species in a changing climate. *Conservation Biology* 22: 575-584.

Naiman, R.J., Latterell, J.J., Pettit, N.E., and J.D. Olden. 2008. Flow variability and the vitality of river systems. *Comptes Rendus Geoscience* 340: 629-643.

## 2007

Olden, J.D. 2007. Critical threshold effects of benthoscape structure on stream herbivore movement. *Philosophical Transactions of the Royal Society of London, Series B* 362: 461-472.

Olden, J.D. 2007. How do ecological journals stack-up? Ranking of scientific quality according to the *h* index. *Écoscience* 14:370-376.

Olden, J.D., Hogan, Z.S., and M.J. Vander Zanden. 2007. Small fish, big fish, red fish, blue fish: size-biased extinction risk of the world's freshwater and marine fishes. *Global Ecology and Biogeography* 16:694-701.

Poff, N.L., Olden, J.D., Merritt, D.M., and D.M. Pepin. 2007. Homogenization of regional river dynamics by dams and global biodiversity implications. *Proceedings of the National Academy of Sciences, U.S.A.* 104: 5732-5737.

- Schmidt, S.N., Olden, J.D., Solomon, C.T., and M.J. Vander Zanden. 2007. Quantitative approaches to the analysis of stable isotope food web data. *Ecology* 88: 2793-2802.
- Kennard, M.J., Olden, J.D., Arthington, A.H., Pusey, B.J., and N.L. Poff. 2007. Multi-scale effects of flow regime and habitat and their interaction on fish assemblage structure in eastern Australia. *Canadian Journal of Fisheries and Aquatic Sciences* 64: 1346-1359.
- Rooney, T.P., Olden, J.D., Rogers, D.A., and M.K. Leach. 2007. Biotic homogenization and conservation prioritization. *Biological Conservation* 134: 447-450.
- Grant, J.B., Olden, J.D., Lawler, J.J., Nelson, C.R. and B.R. Silliman. 2007. Academic institutions in the United States and Canada ranked according to research productivity in the field of Conservation Biology. *Conservation Biology* 21: 1139-1144.
- Halpern, B.S., Silliman, B.R., Olden, J.D., Bruno, J.P., and M.D. Bertness. 2007. Incorporating positive interactions in aquatic restoration and conservation. *Frontiers in Ecology and the Environment* 5: 153-160.
- Cassey, P., Lockwood, J.L., Blackburn, T.M., and J.D. Olden. 2007. Spatial scale and evolutionary history determine the degree of taxonomic homogenization across island bird assemblages. *Diversity and Distributions* 13: 458-466.

## 2006

- Olden, J.D. 2006. Biotic homogenization: A new research agenda for conservation biogeography. *Journal of Biogeography* 33:2027-2039.
- Olden, J.D., Poff, N.L., and K.R. Bestgen. 2006. Life-history strategies predict fish invasions and extirpations in the Colorado River Basin. *Ecological Monographs* 76:25-40.
- Olden, J.D., Joy, M.K., and R.G. Death. 2006. Rediscovering the species in community-wide modeling. *Ecological Applications* 16:1449-1460.
- Olden, J.D. and T.P. Rooney. 2006. On defining and quantifying biotic homogenization. *Global Ecology and Biogeography* 15:113-120.
- Olden, J.D., Poff, N.L. and M.L. McKinney. 2006. Forecasting faunal and floral homogenization associated with human population geography in North America. *Biological Conservation* 127:261-271.
- Olden, J.D., Jensen, O.P. and M.J. Vander Zanden. 2006. Implications of long-term dynamics of fish and zooplankton communities for among-lake comparisons. *Canadian Journal of Fisheries and Aquatic Sciences* 63: 1812-1821.
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- Olden, J.D., McCarthy, J.M., Maxted, J.T., Fetzer, W.W., and M.J. Vander Zanden. 2006. The rapid spread of rusty crayfish (*Orconectes rusticus*) with observations on native crayfish declines in Wisconsin (U.S.A.) over the past 130 years. *Biological Invasions* 8: 1621-1628.
- Mercado-Silva, N., Olden, J.D., Maxted, J.T., Hrabik, T.R., and M.J. Vander Zanden. 2006. Forecasting the spread of invasive rainbow smelt (*Osmerus mordax*) in the Laurentian Great Lakes region of North America. *Conservation Biology* 20:1740-1749.
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- Lawler, J.J., Aukema, J.E., Grant, J., Halpern, B., Kareiva, P., Nelson, C.R., Ohleth, K., Olden, J.D., Schlaepfer, M.A., Silliman, B., and P. Zaradic. 2006. Conservation science: a 20-year report card. *Frontiers in Ecology and the Environment* 4:473-480.

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- Olden, J.D., Douglas, M.E., and M.R. Douglas. 2005. The human dimensions of biotic homogenization. *Conservation Biology* 19:2036-2038.
- Stoltz, J.A., Neff, B.D., and J.D. Olden. 2005. Allometric growth and sperm competition in fishes. *Journal of Fish Biology* 67:470-480.
- Oakes, R.M. Gido, K.B., Falke, J.A., Olden, J.D., and B.L Brock. 2005. Modelling of stream fishes in the Great Plains, USA. *Ecology of Freshwater Fish* 14:361-374.

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- Olden, J.D., Schooley, R.L., Monroe, J.B., and N.L. Poff. 2004. Context-dependent perceptual ranges and their relevance to animal movements in landscapes. *Journal of Animal Ecology* 73:1190-1194.
- Olden, J.D., Hoffman, A.L., Monroe, J.B., and N.L. Poff. 2004. Movement behaviour and dynamics of an aquatic insect larva in a stream landscape. *Canadian Journal of Zoology* 82:1135-1146.
- Olden, J.D., and N.L. Poff. 2004. Ecological mechanisms driving biotic homogenization: Testing of a mechanistic model using fish faunas. *Ecology* 85:1867-1875.
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- Olden, J.D., Poff, N.L., Douglas, M.R., Douglas, M.E., and K.D. Fausch. 2004. Ecological and evolutionary consequences of biotic homogenization. *Trends in Ecology and Evolution* 19:18-24.
- Olden, J.D. and N.L. Poff. 2004. Clarifying biotic homogenization. *Trends in Ecology and Evolution* 19:283.
- Vander Zanden, M.J., Olden, J.D., Thorne, J.H., and N.E. Mandrak. 2004. Predicting the occurrence and impact of bass introductions on temperate lake food webs. *Ecological Applications* 14: 132-148.

## 2003

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## 2002

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## 2001

Olden, J.D. and D.A. Jackson. 2001. Fish-habitat relationships in lakes: Gaining predictive and explanatory insight using artificial neural networks. *Transactions of the American Fisheries Society* 130:878-897.

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Olden, J.D. 2000. An artificial neural network approach for studying phytoplankton succession. *Hydrobiologia* 436:131-143.

Olden, J.D. and D.A. Jackson. 2000. Torturing the data for the sake of generality: How valid are our regression models? *Écoscience* 7:501-510.

## *Reports*

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Steward, B. and 25 other contributors. 2009. Evolving hazards and emerging opportunities. Chapter 12 in *The 3rd United Nations World Water Development Report: Water in a Changing World (WWDR-3)*. 15 pages. Online: <http://www.unesco.org/water/wwap/wwdr/wwdr3/>.

#### *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.

Olden, J.D. 2003. Colorado State University Student Subunit. *Fisheries* 28:28.

#### **Presentations (first author only)**

Latent extinction risk of freshwater fishes: a traits-based approach to inform conservation ranking schemes. 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 10<sup>th</sup> International Congress of Ecology. Brisbane, Australia. [*invited*]

The biogeography of nowhere: Species invasions and the fading antiquity of globe fish faunas. 2009. The 10<sup>th</sup> 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-Riviere, 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 and Fellowships

Department of Defense. <i>Hydroecology of intermittent and ephemeral streams: will landscape connectivity sustain aquatic organisms in a changing climate?</i> (2010-2014). Lead-PI	\$1,478,000
U.S. Geological Survey (Aquatic GAP Program). <i>Conservation planning for fishes in the Upper Colorado River Basin</i> (2010-2013). Co-PI	\$780,000
U.S. Geological Survey (National Fish Habitat Action Plan). <i>Managing the Nations fish habitat at multiple spatial scales in a rapidly changing climate</i> (2010-2012). Co-PI	\$2,418,000
U.S. Geological Survey (National Fish Habitat Initiative). <i>Assessing the threats to freshwater fishes in the Lower Colorado River Basin</i> (2009-2011). Co-PI	\$379,000
Oregon Zoo. <i>Forecasting the potential spread and impacts of invasive</i>	\$4,300

<i>crayfish in the northwestern United States</i> (2009). Co-PI	
Washington State Department of Ecology. <i>Prioritizing management efforts for aquatic nuisance species in Washington</i> (2009-2010). Lead PI	\$40,900
U.S. Environmental Protection Agency - STAR Program. <i>Integrating future climate change and riparian land-use to forecast the effects of stream warming on species invasions and their impacts on native salmonids</i> (2008-2011). Lead-PI	\$587,000
U.S. Geological Survey (Aquatic GAP Program). <i>Forecasting fish species invasions in the Lower Colorado River Basin</i> (2007-2010). Lead-PI	\$165,000
National Oceanic and Atmospheric Administration. <i>Non-native species impacts on threatened and endangered salmonids</i> (2008-2009). Co-PI	\$18,000
National Oceanic and Atmospheric Administration. <i>Developing tools for estimating salmon population benefits of restoring environmental flows to regulated or diverted tributaries</i> (2008-2009). Co-PI	\$87,000
National Oceanic and Atmospheric Administration. <i>Ecologically sustainable water management in Washington State: Developing flow management tools for watershed planning</i> (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**

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)

### **Teaching Experience**

Applied Multivariate Statistics for Ecologists (FISH 560, Graduate), Univ. Washington (2007 –)  
Aquatic Invasion Ecology (FISH 423, Undergraduate), Univ. Washington (2007 –)  
Water and Society (FISH 101, Undergraduate), Univ. Washington (2010 –)  
Ecological Informatics (Graduate), Colorado State University (2005–2006)  
Limnology (FISH 473), Univ. Washington (Guest Lecture)  
Exploring Environmental Majors at the UW (GEN ST 197), Univ. Washington (Guest Lecture)

### **Synergistic Activities**

International Congress of Ecology, Symposium *Species invasions, environmental change and the future biogeography of freshwater fishes*. Brisbane, Australia. (2009) Organizer.  
American Fisheries Society Hutton Scholar Mentor (High School students). Seattle, WA. (2009).  
National Center for Ecological Analysis and Synthesis (Workshop), *Evaluating responses of freshwater ecosystems to experimental water management*. Santa Barbara, CA. (2009 - ). Co-lead.  
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

David Lawrence PhD (projected 2012)  
Lauren Kuehne, MS (projected 2011)  
Eric Larson, PhD (projected 2011)  
Meryl Mims, MS (projected 2010)  
Thomas Pool, PhD (projected 2011)

#### Post-doctoral Researchers

Cathy Reidy Liermann (2008-2010)  
Angela Stecker (2009 -)  
Kristin Jaeger (2010 -)

#### Research Staff

Mariana Tamayo (2009 -)

### *Committee Member (past and present)*

13 graduate students (University of Washington, Rutgers University, Kansas State University)  
5 undergraduate students (University of Washington)

### *School and University Committees*

Recruiting and Admission School Committee (2008 -)  
Quantitative Committee, Ad Hoc member (2009)  
Young Investigator Seminar Series, Co-organizer (2008)

## Scholarly and Professional Activities

### *Professional*

Frontiers in Ecology and the Environment, Editorial Board (2010 -)  
Conservation Biology, Editorial Board (2010 -)  
Ideas in Ecology and Evolution, Editorial Board (2008 -)  
Global Ecology and Biogeography, Editorial Board (2006 - 2010)  
Washington State Aquatic Nuisance Species Committee, Member, (2008 -)  
Freshwater Illustrated, Board of Directors (2007 -)

### *Manuscript Referee for:*

American Naturalist	Ecology	NA J. of Fisheries Management
Aquatic Invasions	Ecology Letters	Northwest Science
Archiv für Hydrobiologie	Ecological Applications	Phil. Trans. R. Soc. London
Biological Conservation	Global Ecol. and Biogeography	Proc. Nat. Academy of Sciences
Biological Invasions	Hydrobiologia	River Research & Applications
Canadian J. Fish & Aquatic Sci.	Journal of Applied Ecology	Science
Copeia	Journal of Biogeography	Trans. American Fisheries Soc.
Conservation Biology	Landscape Ecology	Western NA Naturalist.
Diversity and Distributions	Nature	

### *Referee for Granting Agencies*

National Science Foundation  
National Science and Engineering Research Council  
National Fish and Wildlife Foundation  
New York Sea Grant  
Great Lakes Fisheries Commission

*Media Coverage (select listings)*

Utah Public Radio (Mar 8, 2010), Seattle Times (Jan 16, 2009), Oregon Statesman Journal (Sep 24, 2007), Science Magazine (Jun 22, 2007), The New York Times (Mar 6, 2007), Animal Planet Report (Feb 24, 2006), ABC News (Nov 21, 2005), National Geographic News (Nov 11, 2005)

*Society Memberships*

Ecological Society of America (2000 -)  
American Fisheries Society (2000 -)  
North American Benthological Society (2002 -)  
Society for Conservation Biology (2004 -)