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Engineering & Scientific Consulting

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Professional Profile

Dr. Deines is a quantitative ecosystem and fishery scientist with more than 15 years of experience. He uses data analytic techniques to glean environmental insight from large and convoluted data sources. He specializes in data-limited problems requiring integration of disparate data sets to address knowledge gaps common to environmental impact and risk assessment. Dr. Deines has particular expertise in determining the relationship between populations and drivers of environmental changes such as river flow alterations, invasive species, and chemical releases.

He has conducted international field work in the US, Africa, and Australia, working on multidisciplinary research teams of geneticists, social scientists, economists, and natural resource managers.

Dr. Deines' work includes environmental economic dimensions that consider the value of ecosystems services. In particular, he has developed a bio-economic framework to assess the potential environmental and economic benefits, or drawbacks, of harvesting invasive species for food and other uses.

Dr. Deines' expertise also includes the development and use of environmental DNA (eDNA) for the detection of rare or invasive species in aquatic systems using species-specific genetic markers. Dr. Deines has used DNA analyses to examine the genetic impact of invasive species to native populations and the potential impact to commercially important fisheries.

Academic Credentials & Professional Honors

Ph.D., Biology, University of Notre Dame, 2013

B.S., Environmental Science, Western Washington University, 2003

Professional Affiliations

American Fisheries Society, member since 2013

Ecological Society of America, member since 2011

Publications

Staveley J, Green JW, Nusz J, Edwards D, Henry K, Kern M, Deines AM, Brain R, Glenn B, Ehresman N, Kung T, Ralston-Hooper K, Kee F, McMaster S. 2018. Variability in Non-Target Terrestrial Plant Studies Should Inform Endpoint Selection. *Integrated Environmental Assessment and Management*. 14(5):639-648

Deines AM, Bunnell DB, Rogers MW, Bennion D, Woelmer W, Sayers MJ, Grimm AG, Shuchman RA, Raymer ZB, Brooks CN, Mychek- Londer JG, Taylor W, Beard Jr TD . The contribution of lakes to global inland fisheries harvest. *Frontiers in Ecology and the Environment*. 2017; 15(6):293-298.

Deines AM, Wittmann ME, Deines JM, Lodge DM. Tradeoffs among ecosystem services associated with global tilapia introductions. *Reviews in Fisheries Science & Aquaculture* 2016; 24(2):178-191.

Woelmer WM, Kao Y, Bunnell DB, Deines AM, Bennion DH, Mark W, Brooks CN, Sayers MJ, Banach DM, Grimm AG, Robert A. Assessing the influence of watershed characteristics on chlorophyll a in waterbodies at global and regional scales. *Inland Waters* 2016; 6:379-392.

Lynch AJ, Cooke SJ, Deines A, Bower S, Bunnell DB, Cowx IG, Nguyen VM, Nonher J, Phouthavong K, Riley B, Rogers MW, Taylor WW, Woelmer WM, Youn S, Beard JTD. The social, economic, and ecological importance of inland fishes and fisheries. *Environmental Reviews* 2016; 24(2):115-121.

Deines AM, Bunnell DB, Rogers MW, Beard TD, Taylor WW. A review of the global relationship among freshwater fish, autotrophic activity, and regional climate. *Reviews in Fish Biology and Fisheries* 2015; 25(2):323-336.

Sayers MJ, Grimm AG, Shuchman RA, Deines AM, Bunnell DB, Raymer ZB, Rogers MW, Woelmer W, Bennion DH, Brooks CN, Whitley MA, Warner DM, Mychek-Londer J. A new method to generate a high-resolution global distribution map of lake chlorophyll. *International Journal of Remote Sensing* 2015; 36(7):1942-1964.

Deines AM, Bbole I, Katongo C, Feder JL, Lodge DM. Hybridization of native *Oreochromis* species (cichlidae) and the introduced Nile tilapia (*O. niloticus*) in the Kafue River, Zambia. *African Journal of Aquatic Science* 2014; 39(1):23-34.

Wittmann, ME, Jerde CL, Howeth JG, Maher SP, Deines AM, Jenkins JA, Whitley GW, Burbank SR, Chadderton WL, Mahon AR, Tyson JT, Gantz CA, Keller RP, Drake JM, Lodge DM. Carp in the Great Lakes Region: Establishment potential, expert perceptions and re-evaluation of experimental evidence of ecological impact. *Canadian Journal of Fisheries and Aquatic Sciences* 2014; 71(7):992-999.

Deines AM, Bee CA, Jensen R, Lodge DM. 2013. The potential tradeoff between artisanal fisheries production and hydroelectricity generation on the Kafue River, Zambia. *Freshwater Biology* 2013; 58(4):640-654.

Deines AM, Mahon AR, Chadderton WL, Jerde CJ, Russell J, Small F, Norris A, Thuesen P, Mysorekar S, Lodge DM Detection of feral tilapia populations using a novel environmental DNA surveillance method. Final Report. Australian Government Invasive Animals Cooperative Research Centre, 2013.

Deines AM, Chen VC, Landis WG. Modeling the risks of nonindigenous species introductions using a patch-dynamics approach incorporating contaminant effects as a disturbance. *Risk Analysis* 2005; 25(6):1637-1651.

Select Presentations

Deines AM, Goodfellow WL. The Salton Sea: A real-life experiment of extreme freshwater salinization. SETAC North America 39th Annual Meeting. Sacramento, CA. 4-8 November 2018.

Deines AM, Palmquist K, Morrison AM. Global Status and Risk of Non-Native Fish Aquaculture. American Fisheries Society 148th Annual Meeting, Atlantic City, NJ. August 19-23, 2018

Deines AM, Morrison AM, Menzie CA. Environmental Flows: Evaluating Long-Term Baselines for

Hydrological Regime Change in the Southern United States. American Geophysical Union Fall Meeting, San Francisco, CA. December 12-16, 2016.

Deines AM, Bunnell DB, Rogers MW, Bennion DH, Woelmer W, Brooks CN, Grimm AG, Raymer Z, Sachs MJ, Schuchman RA, Beard TD. New estimation method for global freshwater fish production. Global Conference on Inland Fisheries, FAO Headquarters, Rome, Italy, January 26-28, 2015.

Deines AM, Bunnell DB, Rogers MW, Beard TD, Jr., Taylor WW. Global patterns of inland fisheries and primary production using meta-analysis. American Fisheries Society, Little Rock, AK, September 8-13.

Deines AM, Bee CA, Jensen R, Lodge DM. Influence of fishery effort and damming on Kafue River, Zambia fishery production. Ecological Society of America Annual Meeting, Austin TX, August 7-12, 2011.