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Engineering & Scientific Consulting

Andy Deines, Ph.D.

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Professional Profile

Dr. Andrew M. Deines is a Certified Fisheries Professional and Managing Scientist with more than 20 years of experience helping clients reach their environmental goals by understanding how and why fish and wildlife populations fail, and the implications of such impacts for regulatory compliance, litigation, and environmental decision-making.

His work focuses on Endangered Species Act (ESA) and Natural Resource Damage Assessment (NRDA) matters, with particular experience analyzing salmon and other fish populations affected by dams, flow and temperature modifications, and chemicals (such as DDT, metals, and oil) and emerging contaminants such as 6PPD-quinone. Dr. Deines specializes in data-limited, high-stakes problems that require ecological patterns to be extracted, integrated, and translated into conclusions that withstand public and peer review, including matters in regulatory and litigation settings.

Dr. Deines applies advanced quantitative methods—such as bio- and chemo-informatics, mechanistic population modeling, and carefully governed AI-enabled analytics—within transparent, workflows designed for clarity and reproducibility. His work routinely links exposure, injury, and population-level response in support of threatened and endangered species considerations, damages assessment, and complex environmental litigation.

In addition, Dr. Deines supports business and infrastructure planning through Net Environmental Benefits Analysis (NEBA) and community impact analysis, helping industry evaluate alternative, feasible growth or development options by rigorously comparing ecological tradeoffs, risks, and benefits to inform environmentally grounded decision-making.

He has conducted field and analytical work across the United States as well as internationally collecting fish, water, and environmental DNA (eDNA). Dr. Deines collaborates closely with multidisciplinary teams of geneticists, economists, toxicologists, social scientists, and resource managers on fisheries, aquatic and terrestrial ecosystems, and natural resources.

Academic Credentials & Professional Honors

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

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

Licenses and Certifications

Certified Fisheries Professional by the American Fisheries Society

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Professional Affiliations

King County Bar Association, Board of Directors - New Lawyer Division

American Fisheries Society, member since 2013

Ecological Society of America, member since 2011

Publications

Reiss R, Loccisano A, Deines A, Kim M, Nallani G, Chandrasekaran A, Whatling P. A physiologically-based pharmacokinetic/pharmacodynamic (PBPK/PD) model for the insecticide dimethoate. Xenobiotica 2023; 53:5, 382-395.

DeVleeschower A, Deines AM, Goldberg J, Pasko SR, Barnes MA. Developing a recipe for success: commentary on Seaman et al. (2021) “Eating invasives: chefs as an avenue to control through consumption. Food, Culture & Society 2023. DOI: 10.1080/15528014.2023.2230785.

O'Reilly K, Lahvis MA, DeVaull GE, Deines AM. A comparative plume study of DRO, GRO, Benzene, and MTBE: implications for risk management. Groundwater Monitoring 2021; 41:58-64.

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. Variability in non-target terrestrial plant studies should inform endpoint selection. Integrated Environmental Assessment and Management 2018; 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 TD Jr. 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 TD Jr. 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 Jr., 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, Whitledge 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. 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.

Lodge DM, Deines AM, Gherardi F, Yeo DCJ, Arcella T, Baldridge AK, et al. Global introductions of crayfishes: evaluating the impact of species invasions on ecosystem services. Annual Reviews in Ecology Evolution and Systematics 2012; 43: 449-472.

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

Barnes M, Deines AM, Goldberg J, Pasko S. Webinar: Developing a Recipe for Success: Can Public Harvest Control Invasive Species? Invited. North American Invasive Species Management Association. October 14, 2026.

Deines AM. Use of Artificial Intelligence in NRD Assessments: Use of AI for Geospatial and Satellite Analyis, Ecological Modeling, Economic Valuation, and Reporting and Compliance. Invited. Law Seminars International Presents: The 19th Annual Santa Fe Advanced Conference on Natural Resource Damages. Santa Fe, NM. September 24 & 25, 2026.

Deines AM. Errors in data and analyses persist in spite of transparency measures. SETAC North America 46th Annual Meeting, Portland, Oregon, November 16–20, 2025.

Deines AM, Gill A, Pitt J. Community toxicology- estimating sensitivity using eDNA meta-barcoding results. SETAC North America 46th Annual Meeting, Portland, Oregon, November 16–20, 2025.

Deines AM, Yu Q, Lilly LL, Swann M, Morrison AM. Anywhere but here: conditions supporting recruitment of endangered Klamath basin suckers. American Fisheries Society Annual Meeting, San Antonio, Texas, August 10-14, 2025.

Deines AM. Emerging tools in assessment. The Tenth Advanced D.C. Conference on Litigating Natural Resource Damages, Washington DC, April 24-25, 2025.

Menzie CA, Morrison AM, Kleven M, Deines AM, Yu Q, Duncan B, Ryan S. An integrated approach to cumulative impact assessment in support of projects and actions within delineated environmental justice areas. Presented at SETAC North America 44th Annual Meeting, Louisville, KY, November 12-16, 2023.

Deines, AM, Paulsen SC. A critical review of temperature guidelines used for 303d listing of steelhead streams in California. California-Nevada AFS Annual Meeting, Online only, March 1 – 5, 2021.

Deines AM, Kashuba R, Morrison AM, Newcomer-Johnson T. Questions remaining in the quest to quantify ecosystem services. Society of Environmental Toxicology and Chemistry, North America 42nd Annual Meeting (SciCon4), November 14–18, 2021.

Deines AM, Staveley J, Huggett D, Terneus M. Non-target dung fauna population model to evaluate environmental impacts following use of an active pharmaceutical ingredient (API) in cattle. Society of Environmental Toxicology and Chemistry, North America 40th Annual Meeting, Toronto, Ontario, Canada, November 2019.

Deines AM, Goodfellow WL. The Salton Sea: a real-life experiment of extreme freshwater salinization. Society of Environmental Toxicology and Chemistry, 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 Jr. 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.

Project Experience

Fish and Aquaculture

Led technical support team for ESA litigation involving Pacific salmon and emerging contaminants.

Evaluation of temperature effects on Steelhead trout related to Clean Water Act 303d listing considerations in Northern California.

Provided technical support for multiple aquaculture drug permitting applications.

Provided analysis and technical support concerning potential impacts to near-shore reef fish populations related to ship grounding and resulting oil spill.

Provided analysis and technical support concerning potential impacts to California fishery populations from the Refugio oil spill. Andrews et al. v. Plains All American Pipeline, L.P. et al. United States District Court, Central District of California, Western Division, Case No. 2:15-cv-04113-PSG-JEM.

Risk Assessments and Natural Resource Assessments

Provided scientific support concerning net environmental benefits from coal ash closure alternatives at coal ash plants in North Carolina.

Provided analysis and technical support in Florida v. Georgia United States Supreme Court case that considered alleged adverse ecological changes in freshwater and marine fish and invertebrate populations associated with hydrological changes and consumptive water usages.

Provided scientific support for the Deepwater Horizon NRDA in the Gulf of Mexico and impacts to fish and fisheries.

Developed a matrix population simulation model for evaluating the environmental risk of excreted active

pharmacological ingredient effects on dung fauna in pastures.

Expert consultation to the City of Chicago Department of Environment on risk and impacts of harmful fish invasions associated with increased water temperatures.

Environmental Genetics

Expert witness concerning cultivar intellectual property. Conducted data analysis using SNP Microarray data to determine if the parentage of disputed fruit varieties included patented genotypes.

Provided analysis of organic agricultural supply chain contamination by genetically engineered (“GMO”) constructs including soy, cotton, and corn.

Provided vertebrate (mammal, fish, birds) species identification using next-generation sequencing and meta-barcoding analyses.

Additional Education & Training

57th Tire Mechanics Short Course. The University of Akron, Akron, OH, September 2026.

Tire Forensic Analysis (SAE Course C1424). SAE International, April 16–17, 2019.

Characterizing Elastomer Fatigue Behavior for Analysis and Engineering. Endurica LLC, 2018.

Certified Automotive Tire Service (ATS 300/400). Tire Industry Association, 2017.

Compound Mixing and Consistency. ACS Rubber Division, International Elastomer Conference, Cleveland, OH, October 11, 2017.

Essentials of Rubber Technology. ACS Rubber Division, International Elastomer Conference, Cleveland, OH, October 10, 2017.