Jennifer Sampson
Principal

Education and Credentials

M.S., Fisheries, University of Washington, Seattle, Washington, 1994

B.A., Environment, Technology and Society, Clark University, Worcester, Massachusetts, 1987

Certified Fisheries Professional, American Fisheries Society, 2013

Certified Senior Ecologist, Ecological Society of America, 2007

Professional Affiliations

Society of Environmental Toxicology and Chemistry

Ecological Society of America

American Fisheries Society

Professional Profile

Ms. Jennifer Sampson designs and implements multidisciplinary technical investigations, working with clients to address contaminated sites under federal and state regulatory programs. She is an aquatic ecologist and risk assessor with more than 25 years of experience investigating riparian, wetland, and estuarine ecosystems to quantify and describe ecological risks associated with hazardous substances and anthropogenic disturbance. Ms. Sampson leads and manages teams that include chemists, toxicologists, geologists, hydrogeologists, engineers, statisticians, and data management specialists to prepare and conduct site studies that capture the information necessary for decision-making and cost-effective planning. Ms. Sampson provides technical and strategic leadership on projects that include natural resource damage assessment (NRDA) and restoration planning, ecological and human health risk assessment, development and refinement of conceptual site models and focused study designs, sediment toxicity investigations, bioaccumulation modeling, development of soil and sediment remediation goals, and quantitative contaminant source evaluation. Her projects have included ecological research and development of monitoring strategies for aquatic systems. Ms. Sampson works in partnership with clients to navigate interrelated technical and strategic aspects of environmental assessment and risk management.

Relevant Experience

Remedial Investigation/Feasibility Study and Pre-Remedial Design Investigation

San Jacinto River Waste Pits RI/FS, Harris County, Texas— Integral's technical project manager for the RI/FS and first-phase pre-design investigation (PDI) for the San Jacinto River Waste Pits Superfund site. The site is a closed facility for storage of bleached kraft pulp mill waste deposited in this estuarine marsh environment in the 1960s. The wastes are contaminated with dioxins and furans; the environmental setting is the San Jacinto estuary, onsite riparian areas, and adjacent uplands. Develops and executes technical strategies in consultation with clients, and coordinates and directs Integral's multidisciplinary technical team to address the remedial investigation and PDI requirements.

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Lower Duwamish Waterway RI/FS, Seattle, Washington—Technical advisor to one of multiple parties during the remedial investigation for the Lower Duwamish Waterway Superfund site. Provided strategic evaluation, interpretation and critical review of the group's risk assessments and other remedial investigation documents and technical approaches to support client's project objectives.

Risk Assessment and Natural Resource Damage Assessment

Frenchtown Mill, Ecological and Human Health Risk Assessment Lead, Missoula, Montana—Designs and implements risk assessment-related data collection and analysis. Works collaboratively with clients, EPA, state agencies, and partner firms to identify data gaps relevant to the remedial investigation and risk assessments, to conduct related studies, and to prepare and present ecological and human health risk-related information in the remedial investigation process.

NRDA Technical Advisor, Multiple Confidential Clients, Washington, Oregon, Michigan, New Jersey—Advise clients on various strategic and technical aspects of NRDA, injury assessment, liability allocation, and restoration project identification and planning. Support clients in both cooperative NRDA and litigation.

Lower Klamath and Tule Lake National Wildlife Refuges, Ecological Risk Assessment of Soil Fumigants, Pacific Northwest, U.S.—Performed an assessment of risks to nontarget organisms from the application of two soil fumigants (Vapam HL and Telone II) and their associated use patterns within agricultural lease lands. Evaluated risks due to soil contamination from historical and ongoing fumigant pesticide application to soil invertebrates, terrestrial birds and mammals, aquatic algae, aquatic plants, aquatic invertebrates, and fish, including threatened and endangered species.

Stream Ecological Risk Evaluation, Missouri—Designed and managed multidisciplinary studies to assess ecological injury related to mine tailings in gravel-bedded streams of the Missouri Ozarks. Designed studies to develop information on benthic community structure, benthic invertebrate toxicity, and chemistry of soil, tissue, sediment, sediment pore water, and surface water. Ecological studies were to be synthesized with results of stream geomorphology and sediment transport evaluation to support development of remediation and stream restoration.

Upper Columbia River RI/FS Project, Washington—Provided technical leadership on ecological and fisheries studies in support of the RI/FS process for the Upper Columbia River. Analyzed environmental chemistry and fisheries data, developed field sampling designs, and prepared reports on findings with a multidisciplinary technical team.

Cooperative NRDA, Southeastern U.S.—Provided strategic, research, and analytical support to the owner of a former chemical manufacturing facility in a cooperative NRDA for a pesticide site in the southeastern United States. The investigation spanned riparian, river, and estuarine habitats.

Former Wood Processing Facility, Cass Lake, Minnesota—Conducted the ecological risk assessment at a former wood processing facility in northern Minnesota under a Superfund

program; upland, stream, wetland, and lake habitats were addressed. Contaminants of interest included metals, pentachlorophenol, PCBs, dioxins and furans, and PAHs. Designed the technical approach and data analysis for a sediment toxicity assessment, including a complex multivariate analysis to identify the cause or causes of observed effects. Performed a complete synthesis of a multidisciplinary data set in the ecological risk assessment and prepared related reports. Provided technical leadership in NRDA.

Assessment of Risk of Fish Passage Technologies, Lewis River, Washington—To support evaluations required by a Federal Energy Regulatory Commission dam relicensing process, designed a quantitative risk assessment approach for use in evaluating the success of anadromous salmonid populations in mechanical passage systems on the Lewis River, Washington. The stochastic risk model allowed sensitivity analysis so managers could identify and target specific elements of the passage system that could be improved to enhance the likelihood of the long-term survival of affected populations.

Water Quality Standards Development

Temperature Regulation Development for a Wastewater Treatment Plant, Littleton, Colorado—Supported a technical team that developed site-specific temperature standard proposals for the Colorado Water Quality Control Commission triennial review process for Regulation #38, South Platte River. Evaluated fish risk associated with known and expected annual water temperature cycles, to support development of reasonable and attainable temperature criteria alternatives.

Review of Guidance Documents on Copper Criteria Developed with the Biotic Ligand Model, Multiple Locations—Prepared critical technical reviews of draft state- and national-level guidance documents for the development and implementation of marine and freshwater copper criteria using the biotic ligand model. Identified technical aspects of proposed guidance that required refinement, specification, or further detail to meet the practical needs of implementation. Examples of topics evaluated included use and selection of default input values, appropriateness of supporting toxicity information, timing for the collection of data for biotic ligand model parameter inputs, impacts of data treatment, and analytical precision. Prepared formal comments for submittal to appropriate state or federal agencies on behalf of an industrial client.

Research and Information Synthesis

Victoria Capital Regional District, Victoria, British Columbia, Canada—Conducted a critical review of scientific literature on the toxicity of pharmaceuticals and personal care products to aquatic organisms, and organized results in a searchable database. The database supports the Capital Regional District of Victoria, British Columbia, in the interpretation of results from its wastewater monitoring program.

Fisheries Research, Central Siberia, Russia—Investigated effects of PCBs and metals on fish communities and food-web structure in the Selenga River, Russia. Analyzed and described the structure of the Selenga River food web using stable isotopes of nitrogen and carbon. Coordinated a multidisciplinary, international scientific team for this effort.

River Geomorphology Research, Washington—Investigated the role of large woody debris in the vertical and lateral migration of large, low-gradient river channels throughout Washington and the role of riparian trees in storage of coarse sediment in steep headwater streams of the Olympic Peninsula, Washington. Analyzed mechanisms controlling rates of lateral erosion of river channels in old- and second-growth Olympic peninsula forests.

Fisheries Research, Southeast Alaska—Conducted research on the distribution of beaver ponds relative to watershed-scale geomorphology, classified beaver-created wetlands according to floristic patterns, and investigated the suitability of beaver ponds as fish habitat.

Epidemiology of Respiratory Disease, Augusta, Maine—Investigated statistical patterns in the distribution of chronic respiratory disease in the state of Maine. Developed analytical protocol to investigate relationships between chronic respiratory disease and paper mills throughout Maine.

Development of Monitoring Programs

Victoria Capital Regional District, Victoria, British Columbia—Developed a program to monitor effects of pharmaceuticals and personal care products, including endocrine disrupters, on the marine environment affected by municipal wastewaters discharged by the Capital Regional District of Victoria, British Columbia.

Natural Resources Monitoring Design, Hoh River Watershed, Washington—Developed a multiparameter aquatic resource monitoring program for the Hoh Tribe of Indians. The design included monitoring of physical fish habitat characteristics, status of certain fish populations in subareas of the watershed, responses to mitigation of logging impacts, and water quality monitoring. Provided guidance on data management and analysis for the program.

Project Management and Leadership

Project Management—Manages projects relating to RI/FS requirements, ecological risk assessment, NRDA, and information development and synthesis. Provides technical leadership across a broad range of projects that relate to ecology and ecotoxicology. Negotiates with oversight on behalf of clients, and defends clients' technical approaches and results of investigations to a variety of audiences. Served as Integral's Quality Assurance Officer for 3 years, providing leadership on and developing the company's QA programs, providing training, and creating tools for more effective QA in all discipline groups.

Development and Coordination of Ecological Research Programs, Mongolia and Russia—Designed and implemented multidisciplinary ecological research in the Selenga River Watershed, which spans northern Mongolia and south-central Siberia. Coordinated scientists and government agents from Mongolia, Russia, and the United States in the development and implementation of research and information, and in the execution of a watershed management conference in Central Asia.

Hydropower Project Relicensing, Lewis River, Washington—Served as technical liaison between a coalition of conservation groups and a team of agency and industry scientists in the alternative

relicensing process for four power projects on the Lewis River in southwestern Washington. Worked cooperatively with public agencies, tribes, and hydropower project managers to develop technically robust studies of salmonid habitat condition and restoration strategies.

Publications

Sampson, J.R., M. Aldea, and D. Nielsen. 2011. Limits to predicting bioaccumulation of polychlorinated dibenzo-*p*-dioxins and dibenzofurans in fish and crab tissue. Proceedings of the Seventh International Conference on Remediation of Contaminated Sediments, New Orleans, LA, February 7–10.

Sampson, J.R., D. Nielsen, P.M. Mattison, and W.W. Locke. 2009. The relationship of natural organic carbon to reduced growth of chironomids exposed to field collected sediments. Proceedings of the Fifth International Conference on Remediation of Contaminated Sediments, Jacksonville, FL, February 2–5.

Brummer, C.J., T.B. Abbe, J.R. Sampson, and D.R. Montgomery. 2006. Influence of vertical channel change associated with wood accumulations on delineating channel migration zones, Washington, USA. *Geomorphology* 80:295–309.

Sampson, J.R., E.A. Tarasova, E.M. Mamontova, A.A. Mamontov, S. Chandra, G.V. Kalmychkov, and I.I. Toupitsyn. 2002. Polychlorinated biphenyls and mercury in sediments and aquatic biota, nearshore juvenile fish communities and food web structure in the lower Selenga River, Russia. 10,000 Years Institute Technical Report, August 2002. Bainbridge Island, WA.

Sampson, J.R. 2001. Comparative assessment of risk to migrating salmon in the Lewis River: Volitional passage vs. trap and haul. Prepared by 10,000 Years Institute and Steward and Associates. Technical Memorandum prepared for the Lewis River Alternative Relicensing Process, Aquatic Resources Group. May 29.

Pastorok, R.A., A. MacDonald, J.R. Sampson, P. Wilbur, D. Yozzo, and J.P. Titre. 1997. An ecological decision framework for environmental restoration projects. *Ecol. Engr*. 9:89–107.

Sampson, J.R., R.S. Mellott, and R.A. Pastorok. 1996. Ecological risk assessment at a mine pit lake, Nevada, USA. In: Proceedings of the Twentieth Annual Mine Reclamation Conference, Kamloops, British Columbia.

Pastorok, R.A., D.C. Peek, J.R. Sampson, and M.A. Jacobson. 1994. Ecological risk assessment for river sediments contaminated by creosote. *Environ. Toxicol. Chem.* 13(12):1929–1941.

Presentations / Posters

Nielsen, D., J. Sampson, K. Whitehead, and J. Durda. 2015. Quantitative integration of multiple lines of evidence: The use of likelihood ratios in benthic community risk assessments. Poster Presentation, Eighth International Conference on Remediation of Contaminated Sediments, New Orleans, LA. January 12–15.

Sampson, J.R., and B. Day. 2009. Slip 4 early action site: An example of remediation delayed by a lack of coordination between upland source control and in-water remediation programs. Sediment Management Work Group Meeting, Saratoga Springs, NY. September 29.

Sampson, J.R., B. Day, A. Bradley, V. Fagerness, M. Tritt, and E. Spalt. 2007. Understanding the ecological significance of recontamination: A case study of bis(2-ethyl hexyl) phthalate. Platform Presentation, International Conference on Remediation of Contaminated Sediments, Savannah, GA. January 27.

Sampson, J.R., E.N. Tarasova, E.A. Mamontova, L.D. Andrulaytis, E. Matveeva, O.A. Sklyarova, T. Galkina, and E.I. Butakova. 2004. Metals in sediment and riparian soils near placer mines on the Tuul and Yeroo rivers, Mongolia. Poster Presentation, Science for Watershed Conservation, Ulan Ude, Russia. September 1–8.

Sampson, J.R., G.C. Ward, M.M. Pollock, and J. Silver. 2003. Storage of coarse sediment by large wood in headwaters of the Hoh River, Washington. Poster Presentation, Oregon Headwaters Research Conference, Oregon State University, Corvallis, OR. January 16.