



Salmon Spawning Habitat Protection Rule Science Advisory Group Member Bios

Joy Archuleta, US Forest Service

Water Quality and Water Rights program manager for Region 6 (OR&WA) US Forest Service. More than twenty years' experience as agency hydrologist working on water quality issues across the region. Educational background in biology, soils and water resources.

Jennifer Arthur, Seattle Public Utilities

Jennifer Arthur is a Senior Environmental Analyst and Science Information Specialist with Seattle Public Utilities (SPU) in the Drainage and Wastewater Line of Business (DWW) Environmental Science and Technology group. Jennifer provides environmental data management and data quality assurance support including managing water quality and environmental monitoring data for regulatory compliance, grant, and BMP effectiveness projects and leading SPU's Environmental Data Quality System (EDQS) program.

Jennifer supports the implementation of best practices across SPU for the collection, management, and reporting of long-term environmental data. She provides data management, reporting, and technical support as System Custodian for SPU's DWW and Cedar River Hatchery EQuIS™ databases and is the author of the DWW EQuIS environmental data management plan. As the EDQS lead, she works with SPU project teams to use the guidance and templates to generate data quality objectives and planning documents. Additionally, she provides analytical chemistry and data validation expertise across the phases of the project lifecycle.

Jennifer has a Ph.D. in Analytical and Environmental Chemistry for which she performed laboratory, field, and modeling studies investigating the transport and fate of metals in acid mine drainage systems and developed a database for metals sorption on natural mineral surfaces used in EPA's MINTEQA2 equilibrium speciation model. She has provided chemistry and data analysis and quality support for brownfields, Superfund, and litigation support projects as an environmental consultant. She additionally has taught chemistry, environmental science, and physics at the college level and worked as an analyst at environmental laboratories.

Jordan Bauer, Ecology

Originally from Wisconsin, I graduated with a Master's in Conservation Biology and having pursued a summer position performing salmonid population estimates and electrofishing surveys in southeast Idaho I decided to move West. Prior to coming to WA Department of Ecology I worked in the private sector collaborating with federal, state, and local agencies acquiring permits and performing surveys according to compliance schedules. The US Forest Service's R1/R4 and Idaho's Beneficial Use Reconnaissance Program (BURP) stream assessment surveys are two of the protocols I've used in the past to characterize salmonid bearing streams. Currently at Ecology I am the hydropower compliance coordinator for our Eastern Regional Office (ERO).

Seth Book, Skokomish Tribe

Ashley Coble, The National Council for Air and Stream Improvement, Inc. (NCASI)

Ashley Coble is a Forest Watershed Scientist with NCASI. She completed her postdoctoral research in aquatic biogeochemistry at the University of New Hampshire. She obtained a Ph.D. in limnology and aquatic biogeochemistry from Michigan Technological University, a M.S. in terrestrial biogeochemistry from Northern Arizona University, and a B.A. in Biology from Mount Holyoke College. Her current research focuses on understanding the effects of forest management on water quantity, quality, and aquatic food webs throughout the Pacific Northwest.

Joanna Crowe Curran, US Corps of Engineers

I am a quantitative fluvial geomorphologist with over 20 years of experience working on river and stream systems across the U.S. and in the Pacific Northwest. I specialize in analyzing how sediment transport mechanics, open channel hydraulics, and surface geology combine to establish river processes over time. Results of these analyses inform the design of river restoration projects that focus on improving the functional habitat of the river for aquatic species. Improving habitat in gravel and sand systems includes a sediment transport system that overturns the active layer and maintains hyporheic flow in the shallow subsurface.

I have a PhD in geomorphology and environmental engineering from The Johns Hopkins University where my research focused on the dynamics of natural step pool sequences in steep channels and I was co-developer of the Wilcock and Crowe sediment transport model. I have a master's degree in geology from the University of Texas at Austin where my research was on mapping the habitat of the endangered fountain darter. Prior to moving west, I was a tenured professor at the University of Virginia. Upon deciding to re-focus my career towards implementing improvements to rivers, I moved to Seattle and have worked in private consulting and now for the Seattle District Corps of Engineers.

Chris Frissell, Salish Kootenai College; Frissell & Raven Hydrobiological and Landscape Sciences, LLC

Chris Frissell is currently Instructor in the Department of Hydrology at Salish Kootenai College. He holds a Ph.D. and M.S. in Fisheries Science from Oregon State University, where he studied the influences of land use and forest management on freshwater habitat of salmon and other fishes. He has held faculty appointments at Oregon State and The University of Montana's Flathead Lake Biological Station, where he advised and graduated several MS and PhD students. His research has focused on the cumulative environmental effects of landscape development, climate change, and other natural and human factors on streams and rivers; stream classification; geomorphology; salmon spawning habitat dynamics; hyporheic flow processes and effects on surface waters; and the conservation biology and restoration ecology of native fishes and amphibians.



Lindsay Guzzo, EPA

I have worked for the US Environmental Protection Agency Region 10 for 16 years, with the first 12 as an NPDES permit writer and the last 4 as a Water Quality Standards Coordinator. My WQS work has been primarily with the State of Washington working on a variety of criteria including primary contact recreation criteria, total dissolved gas criteria and WQS variances. I graduated from Montana Tech with a BS in Environmental Engineering and a minor in Professional and Technical Communications.

Tim Hagan, Pierce County

Mr. Hagan has 25 years of professional experience working in soil, wetland and water quality science with an emphasis on Clean Water Act programs, municipal stormwater planning, and TMDL program development and implementation. Mr. Hagan works as a senior water quality planner / project manager / TMDL Program lead for Pierce County Surface Water Management.

Mr. Hagan has a BS in soil science and a BS in silviculture with minors in geology, hydrology and biology. Mr. Hagan has a MA soil biogeochemistry and a certificate from the Wetland Science and Management Program at the University of WA. He is a Certified Professional in Erosion and Sediment Control, Certified Professional in Municipal Stormwater Management, Certified Erosion, Sediment and Storm Water Inspector, and Certified Professional in Stormwater Quality.

Kirk Krueger, Washington Dept of Fish and Wildlife

Kirk Krueger is a Senior Fish and Wildlife Research Scientist in the Washington Department of Fish and Wildlife. He leads the Habitat Assessment and Monitoring Section of the Habitat Science Team. The Section helps design and implement monitoring efforts for the Intensively Monitored Watersheds (IMW) project and several other environmental monitoring efforts, such as the Department of Ecology's Watershed Health Monitoring, eelgrass and submerged aquatic vegetation monitoring, nearshore restoration project monitoring, freshwater mussel monitoring, and forage fish spawning monitoring. Kirk has a BA from Moorhead State University, a MS from University of Wyoming, and a Ph.D. from Virginia Tech. For the past decade he has also been a scientist with the Expert Regional Technical Group (ERTG) for the Columbia River Estuary where he helped develop and implement an expert panel process to review restoration projects.

Patrick Lizon, Ecology

In my current role with Ecology, I work on issues related to TMDL development, implementing the state's nonpoint plan, developing water quality BMPs for agriculture, and nonpoint enforcement efforts. My prior role at Ecology involved coordination of the statewide water quality assessment (CWA 303(d) list and 305(b) report), developing water quality assessment methodology (Ecology's Policy 1-11), and helping to develop Ecology's water quality atlas and water quality assessment automated software. Before moving to WA, I worked in VA's nonpoint program, coordinating public participation in TMDL implementation plan (IP) development, writing IPs, and managing nonpoint grants that implement IPs. I also worked in MT's nonpoint program for several years in multiple roles involving: developing methodology and field SOPs for fine sediment assessment; nonpoint grant/contract management; working with stakeholders to develop TMDL IPs; evaluating the effects of nonpoint source pollution upon surface waters for 303(d)/305(b) purposes; performing statewide water quality monitoring; and providing technical assistance to volunteer monitoring groups. I also have some experience working as a fisheries technician in Wyoming and participating in research of amphibian populations in MT. I received a master of agriculture degree with a major in rangeland ecology & management, and minors in soil science and fisheries science from Oregon State University. I received a bachelor's degree in biology with an ecology emphasis from The University of Montana. My primary areas of scientific interest include: the nexus of rangeland ecology and stream ecology; benthic macroinvertebrate ecology/bioassessment (in particular, fine sediment and temperature effects), stream geomorphology, process-based stream/riparian restoration, and watershed conservation planning.

Brian Mattax, WSP / Consultant



Brian Mattax is a Senior Aquatic Scientist and Certified Lake Manager with 36 years of experience addressing water and aquatic resources. He specializes in water quality and aquatic habitat for proposed and existing hydroelectric projects and has also managed/conducted studies to evaluate/address effects of water supply projects, mining, industrial uses, development, grazing, and restoration efforts. Sampling programs include evaluating the effects of reservoir drawdown and dam releases on the water quality in reservoirs and downstream of dams, the efficacy of turbine aeration to increase dissolved oxygen (DO) while limiting total dissolved gas (TDG) loading, the effectiveness of reducing TDG loading by preferentially selecting the use of specific spillway gates, effects of hydropower maintenance events on water quality, stream hydraulics for instream flow studies, and tracking seasonal movements of common carp. Brian also led modeling programs to evaluate water temperature and instream flow habitat under varied management of water resources. He has conducted numerous evaluations to determine the extent of compliance with water quality criteria in several states and conducted a review of the differences in DO criteria for the 50 states. Brian is currently a member of the WSP USA Team providing environmental and engineering support services to the Federal Energy Regulatory Commission (FERC) Office of Energy Projects and is the owner/operator of Mattax Solutions LLC.

Glen Merritt, Ecology

Glenn Merritt is the lead for Watershed Health Monitoring in Ecology's Environmental Assessment Program. He has been monitoring stream biological communities and their habitat throughout Washington since 1994.

Cleo Neculae, Ecology

Cleo Neculae is Ecology's TMDL Lead for WRIAs 8 and 9 (Cedar-Sammamish-Lake Washington and Green-Duwamish, respectively). She is currently working with environmental engineers in Ecology to develop water cleanup plans for Soos Creek, a tributary to the Green-Duwamish River with impairments for temperature, dissolved oxygen, and benthic invertebrates. Her previous experience includes managing stormwater grants for Ecology and analyzing the impacts of policy decisions related to water resource allocations for an environmental economics firm. She has a bachelor's degree in Economics and Math from the University of Oregon and a master's degree in Geography/Watershed Science from San Diego State University.

Ted Parker, Snohomish County

Fishery Biologist working with both marine and freshwater species 20+ years, worked for NMFS ESA group doing ESU/DPS determinations and listings for protection under the ESA, conducted salmon downstream passage studies at Columbia Dams, Assessments of fish use of instream restoration structures, regional stream habitat conditions vs Federal and state standards in Snohomish County, culvert impacts to fish passage and corrections, BMPs for limiting sediments from escaping work area during road maintenance work, development of BMP guideline documentation for the protection freshwater mussels, salmonids and other aquatic life, conducted stream and river/floodplain temperature studies in the Snohomish basin. Development of stream surveys protocol documenting key habitat parameters such as fine sediments/pebble counts/embedment.

Cole Provence, Ecology

I grew up in Northern Utah, and attended graduate school at Michigan State University, where I focused on freshwater restoration techniques. I moved to the West coast in 2008, and worked my way up and down the coast as a fishery biologist on a wide variety of ESA-listed fishery projects. In 2016, I came to working for Washington Department of Fish and Wildlife as a member of the water science team mainly looking at how to improve stream flow for fish populations throughout Washington state. I came to work at Ecology in 2019 as a TMDL lead in the water quality program here in the Central Region. For almost two decades I have also been highly involved in the commercial beer world, so when I am not at Ecology, I teach at Central Washington University for the Craft Brewing Program.

Rainy Rau, City of Vancouver

My BS is in Environmental Science and I lead a Clark county-wide citizen science project with K-12 students focused on watershed studies, specifically through level 1, NGSS-aligned field investigations based on Washington State's water quality standards.

Keunyea Song, Ecology

Earned PhD in Environmental Engineering with Biogeochemistry and aquatic ecosystem focus.

Currently Stormwater Action Monitoring (SAM) program scientist in Water Quality Program, developing and leading receiving water monitoring program to assess the impacts of urban development and stormwater on streams in Western Washington.

Leanne Weiss, Ecology

I am a TMDL lead in the Southwest Regional office. Since I started at Ecology in December of 2016, I have been working on the Budd Inlet TMDL for dissolved oxygen in marine waters. I also manage grants and loans and specialize in property acquisition projects in our region. Before coming to Ecology I completed a Master's degree in Environmental Management at Yale University School of Forestry and Environmental Studies, with a specialization in water resources.

I grew up Salmon fishing in the Hanford Reach and am excited to be part of this workgroup!

Angela Zeigenfuse, Ecology

Angela Zeigenfuse is the Senior Water Quality Rule Writer & 401 Certification Coordinator in Ecology's Water Quality Program. Prior to this, she worked for the New York City Department of Health and Mental Hygiene where she supervised field teams and created compliance protocols for a new law regulating cooling towers throughout the city's five boroughs. She was also involved with coordinating emergency response focused on building water systems and investigating how this related to clusters and outbreaks of Legionnaires' Disease. She also previously worked for the Washington State Department of Transportation as an Environmental Compliance Assurance Inspector on construction projects throughout the I-405 corridor.

Angela Zeigenfuse holds a BS in Biochemistry from Washington State University. Her senior research project was on *Pseudomonas fluorescens* and its interactions with wheat rhizomes. Her MS studies in Environmental Science with an emphasis in Toxicology were also conducted at WSU. Angela's graduate research focused on the effects of a pesticide, spinosad, and an agricultural adjuvant, R-11, tested singly and in mixtures, to three daphnid species and coho salmon.