STEPHEN A. MCCORD, PH.D., P.E.

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STEPHEN MCCORD is President of McCord Environmental, Inc., based in Davis, CA. With over 25 years of research, teaching, and consulting experience, Dr. McCord serves clients throughout California and internationally in water quality and watershed management. Key project areas include technical project management, strategic planning, stakeholder facilitation, watershed and lake management, discharge and receiving water monitoring, and water quality modeling. Special water quality expertise in lake management, conceptual and mass balance models, TMDLs, water quality trading, and abandoned mine site cleanups.

EDUCATION

Ph.D., Civil and Environmental Engineering, University of California, Davis, CA (1999)

- Major areas of study: water quality, water resources management, numerical methods
- Dissertation topic: Effects of forced mixing on lake water quality

M.S., Civil and Environmental Engineering, University of California, Davis, CA (1995)

- Thesis topic: Modeling redox transformations of iron and manganese in anoxic reservoirs

B.S. (Cum Laude), Civil Engineering, Clemson University, Clemson, SC (1990)

- Area of Emphasis: Environmental

REPRESENTATIVE PROFESSIONAL EXPERIENCES

Lake and Reservoir Water Quality Management

- Project manager for pilot hypolimnetic oxygenation system in Clear Lake, California's largest natural lake and North America's oldest lake.
- Lake manager for Pine Mountain Lake Association's 180-acre, 100-feet deep reservoir in Groveland, CA. Monitor and advise on lake quality; track and report on water rights and dam instrumentation.
- Advisor to Lake Wildwood Homeowner's Association in Penn Valley, CA. Developing a lake management plan addressing issues of pollution, waterfowl, hydrology, fish, sedimentation and dam safety.
- Advisor to Stonegate Lake Homeowner's Association in Davis, CA. Developed and support implementation of a lake management plan addressing issues of pollution, waterfowl, hydrology, fish, pathogens, outlet operations and more.
- Limnology specialist for management of Newell Creek Reservoir ("Loch Lomond") in Santa Cruz, CA, addressing: algaecide applications, intake depths for a new withdrawal structure, hypolimnetic oxygenation, lake monitoring and numerical modeling.
- Technical evaluator for proposed Pacheco Reservoir expansion project in San Jose, CA.
- Project manager for designing, installing, and monitoring success of a hypolimnetic oxygenation system in Bear Lake, CA, a high Sierra multi-use reservoir.

- Project manager and field leader monitoring mercury conditions in sediments, water, and sportfish in gravel mining dredge ponds and adjacent river in the Sacramento Valley, CA.
- Research team leader evaluating mercury cycling and bioaccumulation effects of hypolimnetic oxygenation systems in four reservoirs in the San Jose service area.
- External lake management advisor for the community of Nordelta, Argentina, addressing eutrophication of a constructed, isolated system of interconnected lakes and canals.
- Lead technical analyst for environmental review of mercury impacts from a project to improve Almaden Lake, among the most mercury-contaminated lakes in the US.
- Technical support to local and international partners in developing a long-term water balance model and addressing watershed management for Lake Nakuru, Kenya.
- Model development and application lead applying the WQRRS reservoir water quality model to quantify ammonia cycling in two San Francisco drinking water reservoirs.

Watershed Management

- Project manager for rehabilitation of off-road vehicle trails in BLM's fire-scarred Knoxville Management Area, funded by Napa County and CA State Parks grants.
- Project manager for successful remediation of an abandoned mercury mine in CA's inner Coast Range, applying MercLok for mercury control in an in-place repository.
- Project manager for a USEPA-funded Brownfields Coalition Assessment project to inventory, assess and prioritize abandoned mercury mines in the Inner Coast Range.
- Project manager for an 8-member team of technical and regulatory specialists improving site conditions and drainage for two abandoned mercury mines in the Inner Coast Range.
- Consultant to the federally-recognized Yocha Dehe Wintun Nation tribe to identify and characterize multiple mercury improvement projects in the Cache Creek watershed.
- Developed a conceptual model and mass load estimates for mercury in the Sacramento River watershed. Administered and edited the Strategic Plan. Facilitator for the 500-member Delta Tributaries Mercury Council.
- Project manager for a three-year restoration and community stewardship project for an urban stormwater drainage channel in Davis, CA. Project contributors included resource planners, university researchers, municipal maintenance crews, student groups, community volunteers, and consultants.
- Project manager and facilitator for the 150-member Delta Methylmercury TMDL Nonpoint Sources Workgroup, produced methylmercury control study workplan for wetlands and irrigated agricultural lands in the Sacramento-San Joaquin Delta.
- Water quality technical expert on the strategic development team for the Northern Sacramento Valley Integrated Regional Water Management Plan.
- Technical and policy expert and strategic advisor to several municipalities and agencies addressing TMDLs and other pollution control programs throughout California.
- Project manager and technical lead for assessing the feasibility of water quality trading of bioaccumulative pollutants (mercury and selenium) for NPDES permittees in the Central Valley and Orange County.

Water Quality Monitoring and Analyses

- Regional technical consultant for Albemarle Corp. R&D branch pilot testing MercLok mercury sequestering at mercury mine sites and contaminated wetlands.
- Technical Advisory Committee chair, mercury subcommittee lead, and technical consultant to stakeholders developing and implementing a regional water quality monitoring program for the Sacramento-San Joaquin Delta.
- Monitoring Committee facilitator and technical consultant leading stakeholders developing a regional water quality monitoring program and data portal for the Sacramento River Watershed.
- Water quality management and monitoring lead for a drain cleaning project in New Bullards Bar Dam on the North Yuba River, CA.
- Technical consultant to the County of Sacramento monitoring and assessing mercury in Alder Creek in advance of a residential development in its watershed.
- Technical and strategic consultant to the Central Valley Clean Water Association's Methylmercury Special Projects Group for conducting control studies consisting of monitoring design, treatment comparative analysis, cost-benefit analysis, Technical Advisory Committee review and exposure reduction program guidance.
- Technical lead for a one-year monitoring program, evaluated data for water column and sediment samples to prioritize pollutants of concern, proposed and interacted with stakeholders to identify feasible control measures, and authored a plan to address pollutants of concern in the Yolo Bypass, a leveed, multi-use, 59,000-acre floodplain.
- Project manager and technical consultant to the Sacramento County Coordinated Monitoring Program, a regional ambient monitoring program coordinated among a joint city and county stormwater program and sanitation district. Wrote annual reports and coordinated with other regional monitoring efforts.
- Task manager for effluent and receiving water monitoring for the City of Sacramento's Combined Sewer System. Managed consultant team, City crews, and contract laboratories to monitor multiple effluents and receiving water stations during intermittent discharge events for a broad suite of constituents.
- Project manager for developing and managing a baseline stormwater quality monitoring program for a new development area in the City of Elk Grove draining to Stone Lakes National Wildlife Refuge. Multi-faceted project included sampling and analyzing storm runoff, deploying continuous sensors, and testing water and sediment toxicity. Organized volunteer monitoring activities and presented at community stakeholder workshops.
- Technical lead performing dye tracer studies to confirm analytical mixing solution. Applied numerical models CORMIX and Visual Plumes to delineate effluent mixing zones in rivers and bays. Managed application of two-dimensional hydrodynamic models in tidally-influenced deltas, bays and harbors.
- Project manager for a pioneering investigation of mercury exposure and bioaccumulation associated with Sacramento Regional Wastewater Treatment Plant discharges. Monitored mercury and associated conditions in water, sediment, microseston, resident and transplanted clams, and fish. Facilitated technical review, angler surveys and local community meetings.

- Project manager on multiple projects constructing and deploying custom-made continuous sensors in effluent and in tidally-influenced rivers. Interpreted results to quantify dilution, transport, reaction kinetics, and diurnal patterns.

Regulatory Assistance

- Technical consultant supporting permitting and remediation for regulatory compliance of a property recovering from an illegal cannabis operation.
- Technical lead for updating a Yolo County ordinance and policy for aggregate mining impacts on in-stream mercury conditions.
- Project manager for renewing NPDES permit for municipal wastewater utilities. Tracked permit compliance and implemented permit requirements for monitoring, special studies, and reporting. Analyzed effluent and receiving water quality data, conducted sampling, managed modeling efforts, and assessed compliance with federal and state policies.
- Technical consultant for commenting on relevant federal and state regulatory and policy initiatives and NPDES permits throughout California for multiple clients.

Storm Water Management

- Technical lead on hydrologic analyses for stormwater management on composting operations in Livermore, Sacramento, and Salinas, CA.
- Project manager for developing stormwater management programs for cities of Davis, West Sacramento, Auburn, and Grass Valley and the county of Yolo under the Phase II Municipal Storm Water General Permit. Assessed existing storm water management program requirements for construction projects, industrial sites, and illegal discharges / illicit connections versus NPDES permit requirements. Initiated program implementation by developing draft legal code, schedules and budgets, and best management practices.
- Technical and regulatory consultant to the Sacramento Stormwater Quality Partnership supporting co-permittees within Sacramento County. Led field sampling and reporting on water quality benefits of a storm water detention basin and a grassy swale.
- Technical lead for analyzing stormwater data and simulating stormwater pollutant loads for various annual stormwater management programs.
- Faculty for watershed management technical training workshops and speaker for municipal stormwater management seminars throughout California.
- Technical lead for developing program elements and implementation schedules related to new development guidelines, maintenance of structural controls, and municipal operations.

HONORS AND ACTIVITIES

- Registered Professional Engineer in California (license #C58106)
- Distinguished Engineering Alumni Award, University of California Davis (2021)
- Leadership and Service Award, Certified Lake Manager, Member; North American Lake Man. Society (Cert. #13-08P)
- Primus Inter Pares, President, Regional Director, and Secchi Disk Award for Excellence, California Lake Management Society

- Chair, Board of Directors, Clean Water Help (2024-present)
- President, Board of Directors, Tuleyome (2023-2025)
- Chair and Treasurer, Board of Directors, Putah Creek Council (2011-2022)
- Member, Solano Groundwater Sustainability Plan Citizen Advisory Committee (2020-2021)
- Research Associate, Univ. of CA Davis Tahoe Environmental Research Center (2012-2025)
- Responsible Engineer in Charge, Engineers Without Borders, Univ. of CA Davis student chapter, Peru program (2021-present)
- Senior Design Project Sponsor, Univ. of CA Davis Civil & Envir. Engr. Dept.
- Civil Exam Committee Member, National Council of Examiners for Engrg. & Surveying (2001-2014)
- Fulbright Senior Specialist (Haiti, 2008; Chile 2013; Vietnam 2025) and Peer Reviewer (2014-2024)
- Professional Affiliate and host, US Dept. of State's Humphrey Scholars Program
- Mentor, US Dept. of State's Mandela Washington Fellows Program
- External Examiner, University of Malawi [now Malawi University of Business and Applied Sciences] Faculty of Engineering Dissertations
- Mentor, UC Davis Guardian Scholars Program
- Certifications (Completion Date: 2/9/2020): Wilderness First Aid, CPR, epinephrine injection
- Certified Open Water Diver, Scuba Schools International
- Safety Assessment Program Evaluator, California Emergency Management Agency
- American Youth Soccer Organization coach, select coach, and coach trainer
- Positive Coaching Alliance award
- Member, Phi Kappa Phi, Tau Beta Pi, and Pi Tau Sigma honor societies
- Graduate Fellow, Tau Beta Pi
- Butterfly Award, Court Appointed Special Advocate (CASA), Yolo County, CA
- Sierra Crest Award Honoree, The Sierra Fund
- UC Davis Community Service Award recipient
- Parent Council Facilitator, Davis Waldorf School

MAJOR PUBLICATIONS

Kusakabe, M., G.Z. Tanyileke, S.A. McCord and S.G. Schladow (2000). "Recent pH and CO_2 profiles at Lakes Nyos and Monoun, Cameroon: Implications for the degassing strategy and its numerical simulation." *J. Geophys. Res.*, 97/1-4: 241-260.

Martinez, G., S.A. McCord, C.T. Driscoll, S. Todorova, S. Wu, J.F. Araújo, C.M. Vega, L.E. Fernandez (2018). "Mercury Contamination in Riverine Sediments and Fish Associated with Artisanal and Small-Scale Gold Mining in Madre de Dios, Peru." *Int. J. Environ. Res. Public Health*, 15: 1584.

McCord, S.A. (1997). "Lake and reservoir management." *Water Envir. Res.*, 69(4): 737-749.

McCord, S.A., M. W. Beutel, S.R. Dent, and S.G. Schladow (2016). “Evaluation of mercury cycling and hypolimnetic oxygenation in mercury-impacted seasonally stratified reservoirs in the Guadalupe River watershed, California.” *Water Resour. Res.*, 52.

McCord, S.A., and W.A. Heim (2015). “Identification and Prioritization of Management Practices to Reduce Methylmercury Exports from Wetlands and Irrigated Agricultural Lands.” *Envir. Man.*, 55(3): 725-740.

McCord, S.A., J. Kollar, and T. Huang (1998). “Lake and reservoir management.” *Water Envir. Res.*, 70(4): 767-780.

McCord, S., G. Reller, J. Miller, K. Pingree (2023). “Application of a Novel Amendment for the Remediation of Mercury Mine Sites with Hydrologic Controls.” *J. Hydrology*, 10(7), 155. https://doi.org/10.3390/hydrology10070155.

McCord, S.A., and S.G. Schladow (1998). “Numerical simulations of degassing scenarios for CO_2-rich Lake Nyos, Cameroon.” *J. Geophys. Res.*, 103(B6): 12,355-12,364.

McCord, S.A., and S.G. Schladow (2000). “Design parameters for artificial aeration of ice-covered lakes using surface aerators.” *Lake and Reserv. Man.*, 17(2):121-126.

McCord, S.A., S.G. Schladow, and T.G. Miller (2000). “Modeling artificial aeration kinetics in ice covered lakes.” *J. Environ. Eng.-ASCE*, 126: (1) 21-31.

Salvato, LA, M Marvin-DiPasquale, JA Fleck, SA McCord, BA Linquist (2024). “Influence of irrigation water and soil on annual mercury dynamics in Sacramento Valley rice fields.” *J. Envir. Qual.*, 1–13. https://doi.org/10.1002/jeq2.20557.

Seelos, M, M Beutel, S McCord, S Kim, K Vigil (2022). "Plankton Population Dynamics and Methylmercury Bioaccumulation in the Pelagic Food Web of Mine-Impacted Surface Water Reservoirs." *Hydrobiologia*, 849:4803-4822.

Tanner, K.C., L. Windham-Myers, J.A. Fleck, K.W. Tate, S.A. McCord, and B.A. Linquist (2017). “The Contribution of Rice Agriculture to Methylmercury in Surface Waters: A Review of Data from the Sacramento Valley, California.” *J. Environ. Qual.*, 46:133-142.

MAJOR PRESENTATIONS

A list of presentations at over 25 major regional and international professional conferences is available upon request.