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 20 years of research, teaching, and consulting experience, Dr. McCord serves clients throughout California and internationally in water quality and watershed management. Key areas of expertise include technical project management and stakeholder facilitation, watershed and lake management, NPDES permitting for stormwater and wastewater facilities, discharge and receiving water monitoring, and water quality modeling. A particular area of focus has been mercury – conceptual and mass balance models, TMDLs, water quality trading, abandoned mine site cleanups, strategic planning, and facilitating stakeholder groups.

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

Watershed Management

- Facilitator for the 500-member Delta Tributaries Mercury Council. Developed a conceptual model and mass load estimates for mercury in the Sacramento River watershed. Administered and edited the Strategic Plan.
- Project manager for an 11-member team of technical and regulatory specialists cleaning up three abandoned mercury mines (landscape and drainage waters) in the Inner Coast Range.
- 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.
- 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.
- Faculty for watershed management technical training workshops and speaker for municipal stormwater management seminars throughout California.

- Technical and policy expert and strategic advisor to municipalities and agencies addressing TMDLs and other pollution control programs throughout California.
- Project manager and technical lead to assess the feasibility of water quality trading of bioaccumulative pollutants (mercury and selenium) for NPDES permittees in the Central Valley and Orange County.
- 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.

Water Quality Monitoring and Analyses

- Technical Advisory Committee co-chair, mercury subgroup lead, and technical consultant to stakeholders developing 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 programs for the Sacramento River Watershed.
- Technical consultant to the County of Sacramento and US Bureau of Reclamation monitoring and assessing mercury in Alder Creek and Lake Natoma in advance of a residential development in the watershed and a statewide reservoirs mercury TMDL.
- Technical and strategic consultant to the Central Valley Clean Water Association's Methylmercury Special Projects Group for conducting control studies consisting of monitoring, treatment comparative analyses, cost-benefit analysis, Technical Advisory Committee review and exposure reduction program input.
- 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 the City of Elk Grove's new development stormwater monitoring project. Led multi-fasceted monitoring project of baseline conditions in water and sediment based on continuous sensors and grab samples.
- Policy and regulatory consultant to the Sacramento Stormwater Quality Partnership supporting co-permittees within Sacramento County.
- 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

- 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

- 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 practice fact sheets.
- Project manager for developing and managing a baseline stormwater quality monitoring program for a new development area 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 for field sampling and reporting on water quality benefits of a storm water detention basin and a grassy swale.
- Technical lead for developing program elements and implementation schedules related to new development guidelines, maintenance of structural controls, and municipal operations.
- Technical lead for analyzing stormwater data and simulating stormwater pollutant loads for various annual stormwater management program reports.

HONORS AND ACTIVITIES

- Registered Professional Engineer in California (license #C58106)
- Civil Exam Committee Member, National Council of Examiners for Engrg. & Surveying
- Certified Lake Professional, North American Lake Man. Society (Cert. #: 13-08P)
- President-elect, California Lake Management Society
- Vice-Chair, Board of Directors, Putah Creek Council
- Fulbright Senior Specialist (Haiti, 2008; Chile 2013) and Peer Reviewer

- Professional Affiliate, US Dept. of State's Humphrey Scholars Program
- Parent Council Facilitator, Davis Waldorf School
- Mentor, UC Davis Guardian Scholars Program
- Court Appointed Special Advocate
- Member, Yolo Basin Foundation
- Member, Water Environment Federation
- Member, California Water Environment Association
- Member, North American Lake Management Society
- Member, Central Valley Clean Water Association
- Member, CA Water Environment Modeling Forum
- Safety Assessment Program Evaluator, California Emergency Management Agency
- Member, Phi Kappa Phi, Tau Beta Pi, and Pi Tau Sigma honor societies
- Graduate Fellow, Tau Beta Pi
- UC Davis Community Service Award recipient
- 2015 Sierra Crest Award Honoree, The Sierra Fund

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.

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

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. Mans., 55(3): 725-740. DOI 10.1007/s00267-014-0425-5

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

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. Manage.*, 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.

MAJOR PRESENTATIONS

A list of presentations at over 20 major regional and international professional conferences is available upon request.