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Susan Paulsen, Ph.D., P.E.

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Professional Profile

Dr. Paulsen has more than 25 years of experience with projects involving hydrodynamics, hydrology, aquatic chemistry, and the environmental fate of a range of constituents. She has provided expert testimony on matters involving the Clean Water Act, state water quality regulations, hydraulics and hydrology, and water rights. Dr. Paulsen also provides scientific and strategic consultation on matters involving Superfund (CERCLA) and Natural Resources Damages (NRD), and she has expertise designing and implementing field and modeling studies of dilution and analyzing the fate and transport of organic and inorganic pollutants, including DDT, PCBs, PAHs, PFAS, copper, lead, selenium, salinity, and indicator bacteria, in surface and groundwater and in sediments.

Dr. Paulsen's expertise includes evaluating storm flows, flood events, and associated sediment transport and changes in geomorphology. She has designed and implemented field studies in reservoir, river, estuarine, and ocean environments using dye and elemental tracers to evaluate the impact of pollutant releases and treated wastewater, thermal, and agricultural discharges on receiving waters and drinking-water intakes. Dr. Paulsen has designed studies using one-, two-, and three-dimensional hydrodynamic and CFD models, longitudinal dispersion modeling, Monte Carlo analysis, and hydrologic and hydraulic models. She has designed and managed modeling studies to evaluate transport and mixing, including the siting and design of diffusers, and has evaluated water quality impacts of stormwater runoff, irrigation, wastewater and industrial process water treatment facilities, and desalination brines.

Dr. Paulsen also has extensive knowledge of water supply and water rights issues, including expertise in California's Bay-Delta estuary, the development of alternative water supplies, and integration of groundwater basins into supply and storage projects. She has worked on matters involving California's Sustainable Groundwater Management Act, and she has evaluated the impacts of oil-field operations on surface waters and drinking-water aquifers.

Dr. Paulsen has broad expertise with water quality regulation through the Clean Water Act and state regulations in California, Washington, Hawaii, and other states, and has worked on temperature compliance models, NPDES permitting, permit compliance and appeals, third-party citizens' suits, and TMDL development. She has evaluated the importance of background and natural sources on stormwater and receiving-water quality, the development of numeric limits for storm flows and process-water discharges, and factors affecting storm flow volumes and flow rates. Dr. Paulsen is the author of multiple reports describing the history and development of water quality regulations and has provided testimony on regulatory issues, water quality, water rights, and water management.

Academic Credentials & Professional Honors

Ph.D., Environmental Engineering Science, California Institute of Technology (Caltech), 1997

M.S., Civil Engineering, California Institute of Technology (Caltech), 1993

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B.S., Civil Engineering, Stanford University, 1991

Licenses and Certifications

Professional Engineer Civil, California, #C66554

Prior Experience

Various positions including President, Flow Science Incorporated, Pasadena, California, 1997-2014

Consultant to Flow Science Incorporated, Pasadena, California, 1994-1997

Staff Engineer, Dames & Moore, Civil Design Group, San Francisco, California, 1990-1992

Graduate Research and Teaching Assistant, Hydrologic Transport Processes and Fluid Mechanics, California Institute of Technology, Pasadena, California, 1993-1997

Research Engineer, Fraunhofer Institute for Atmospheric Environmental Research, Garmisch-Partenkirchen, Germany (West), 1989

Instructor, Technical Communications Program (joint Graduate School of Business/School of Engineering program), Stanford University, Stanford, CA, 1989-1990

Professional Affiliations

American Society of Civil Engineers—ASCE

National Ground Water Association

Languages

German

Italian

Publications

Water Research Foundation Report No. 5123 (Principal Investigators Liang L and Paulsen SC). Establishing Seasonal Targets for Receiving Waters: Rethinking Wet Weather versus Dry Weather Expectations. 2025.

Paulsen SC, Liang L, Parks A, Lofton D, and Beneke T. Clean Water Act Compliance During Wet Weather: Lessons and Recommendations. Proceedings, Water Environment Federation, 2024.

Paulsen, SC. Dealing with PFAS in the Water Supply: Creative Solutions to Emerging Threats. Chemical Engineering Progress, American Institute of Chemical Engineers, August 2022, 118(8):44-47.

California Council for Environmental and Economic Balance (CCEEB); authored by Paulsen SC. Optimizing Storm Water: A supplement to the "Clear Path" report with recommendations to optimize storm water in California's local water supplies. CCEEB: San Francisco, CA. 2018. Available at www.cceeb.org.

Mead AM, Paulsen SC, Seyfried R. Dealing with drought: Modeling the effects of California's recent

drought on a POTW discharge to the Sacramento River. Proceedings of the Water Environment Federation, WEFTEC 2016, New Orleans, pp. 3490-3513, September 2016.

Paulsen SC, Mesard PM. Opportunity under our feet: Successfully managing groundwater basins to balance stakeholder interests. American Bar Association, 44th Spring Conference on Environmental Law, San Francisco, CA, 2015.

Mead AM, Paulsen SC, Seyfried R. Dealing with drought: Modeling the effects of California's recent drought on a POTW discharge to the Sacramento River. Proceedings of the Water Environment Federation, WEFTEC 2016, New Orleans, pp. 3490-3513, September 2016.

Byard JL, Paulsen SC, Tjeerdema RS, Chiavelli D. DDT, Chlordane, Toxaphene and PCB Residues in Newport Bay and Watershed: Assessment of Hazard to Wildlife and Human Health. Reviews of Environmental Contamination and Toxicology 2015; 235.

California Council for Environmental and Economic Balance (CCEEB); authored by Paulsen SC. A Clear Path to Cleaner Water: Implementing the vision of the State Water Board for improving performance and outcomes at the State Water Boards. CCEEB: San Francisco, CA. 2013. Available at www.cceeb.org.

South Orange Coastal Ocean Desalination (SOCOD) Project; authored by Expert Panel Member Paulsen SC. Expert Panel Report: Offshore Hydrogeology/Water Quality Investigation Scoping, Utilization of Slant Beach Intake Wells for Feedwater Supply. Municipal Water District of Orange County (MWDOC): Fountain Valley, CA. 2012. Available at http://www.mwdoc.com/filesgallery/FINAL_Expert_Panel_Rept_10_9_2012.pdf.

Paulsen SC, Goteti G, Kelly BK, Yoon VK. Automated flow-weighted composite sampling of stormwater runoff in Ventura County, CA. Proceedings, Water Environment Federation 2011.12 (2011): 4186-4203. Also published as automated flow-weighted composite sampling of stormwater runoff. Water Environment Laboratory Solutions 2012; 19(2):1-6.

Paulsen SC, List EJ, Kavanagh KB, Mead AM, Seyfried R, Nebozuk S. Dynamic modeling and field verification studies to determine water quality and effluent limits downstream of a POTW discharge to the Sacramento River, California. Proceedings, Water Environment Federation 2007; 12:5695-5721.

Paulsen SC, List EJ. Potential background constituent levels in storm water at Boeing's Santa Susana Field Laboratory. Report to Expert Panel convened by The Boeing Company and Regional Water Quality Control Board, Los Angeles Region, 2007. Available at http://tiny.cc/tyssvz.

Paulsen SC, List EJ, Santschi PH. Modeling variability in 210Pb and sediment fluxes near the Whites Point Outfalls, Palos Verdes Shelf, California. Environmental Science & Technology 1999; 33:3077-3085.

Paulsen SC, List EJ, Santschi PH. Comment on "In situ measurements of chlorinated hydrocarbons off the Palos Verdes Peninsula, California." Environmental Science & Technology 1999; 33:3927-3928.

Paulsen SC, List EJ. A study of transport and mixing in natural waters using ICP-MS: Water-particle interactions. Water, Air, and Soil Pollution 1997; 99:149-156.

Paulsen SC, List EJ. Tracing discharges in ocean environments using a rare earth tracer. Presented at the 27th IAHR Congress, San Francisco, CA, August 1997.

Presentations

Paulsen SC and Liang L. Clean Water Act Compliance During Wet Weather: Lessons and Recommendations. Water Environment Federation Technical Exhibition and Conference (WEFTEC), October 2024.

Paulsen SC and Liang L. Clean Water Act Compliance During Wet Weather: Lessons and Recommendations. California Stormwater Quality Association (CASQA), October 2024.

El Didi, L and Paulsen SC. Risks Related to Extreme Weather and Climate Change. DRI Seminar (virtual), June 2021.

El Didi, L and Paulsen SC. Litigation Risk and Exposure from Extreme Weather Events. 2nd Energy and Environmental Law Conference. Institute for Energy Law (virtual), March 2021.

Paulsen, SC. The water under our feet: Climate impacts to groundwater and implications for NRD analyses. Law Seminars International Conference on Natural Resources Damages (virtual), December 2020.

Brown, KI, Paulsen SC, Graham KE, Soller J, and Boehm AB. Risk-based threshold for a mixture of human and gull-associated microbial source tracking markers in recreational water: implications for regulatory programs. California Stormwater Quality Association (CASQA) annual meeting, October 2019.

Paulsen, SC, Conkle J, Brooks B, Cayan D, Chairs. Water: Bringing science and engineering together to address impacts of climate change on water supply and water quality. Spotlight session, Society of Environmental Toxicology and Chemistry (SETAC) North America meeting, November 2018.

Goodfellow W, Paulsen SC. Strategies for ecotoxicology assessment of physical, biological, and chemical stressors in ambient waters. Society of Environmental Toxicology and Chemistry (SETAC) North America meeting, November 2018.

Thacher R, Paulsen SC, Marjanovic K. Availability of Water in Clifton Court, Sacramento-San Joaquin Delta, to Byron-Bethany Irrigation District during Drought Conditions. American Water Resources Association Annual Conference. Portland, Oregon. November 2017.

Thacher R, Mead AM, Paulsen SC, Henrion M. Decisions, Decisions: Decision Support Modeling in Groundwater Sustainability Planning. American Water Resources Association Annual Conference. Portland, Oregon. November 2017.

Goodfellow WL, Paulsen SC, Marjanovic KC. 2017. Toxicity assessments for NPDES compliance: Traditional TSD methods versus the TST approach. SETAC 38th Annual Meeting, Minneapolis, MN. November 2017.

Love N, Canton C, Skigen S, Yoon VK, Paulsen SC, Claff R. Critical analysis of the Test of Significant Toxicity and the implications for Whole Effluent Toxicity testing. Presented at SETAC National Conference, November 21, 2013.

Deposition & Trial Testimony

Depositions

Kevin Humphrey and Dawn Humphrey v. Jasvir Singh Shahi et al., Case No. C23-01810, Superior Court of the State of California, in and for the County of Contra Costa. July 10, 2026.

Mario Gonzalez, individually and dba Gonzalez Auto Sales, et al. v. State of California, et al., Case No. 23cv004194, Superior Court of the State of California, County of Monterey. May 21, 2026.

The City of Starkville, Mississippi, v. J&P Construction Co., Inc., et al., Case No. 1:24-CV-00015-SA-DAS, United States District Court for the Northern District of Mississippi (Aberdeen Division). June 24, 2025.

The Parish of Plaquemines v. Rozel Operating Co. et al., No. 60-996, Division B, 25th Judicial District Court for the Parish of Plaquemines, State of Louisiana. January 21, 2025.

East Bay Regional Park District v. Questa Engineering Corporation, and related cross-action, Case No. 21CV000770, Superior Court of the State of California, County of Alameda. January 18, 2024.

City of Riverbank, a California municipal corporation, v. Schneider Electric Buildings Americas, Inc., Case No. AAA 01-21-0018-0516, American Arbitration Association. January 4, 2024.

Bob Bahram Hedayati, Maryam Hashemi v. Ravinder Bhatnagar, Does 1 through 50, Case No 19CV357264, Superior Court of the State of California, County of Santa Clara/Unlimited Jurisdiction. October 27, 2023.

Joseph A. Pakootas et al. and State of Washington v. Teck Cominco Metals, Ltd. Case No. 2:04-CV-00256-SAB, United States District Court, Eastern District of Washington. June 14, 2023.

Water Works and Sewer Board of the City of Gadsden v. 3M Company, et al. Case No. 31-CV-2016-900676.00, Circuit Court of Etowah County, Alabama. August 1, 2022.

California Coastkeeper Alliance v. Cosumnes Corporation dba Murieta Equestrian Center, Case No. 2:20-cv-01703-TLN-DB, in the United States District Court, Eastern District of California. June 8, 2022.

Rosemary Ramirez v. American Golf Corporation et al., Case No. 30-2020-01148198 CU-PO-CJC, in the Superior Court of the State of California, County of Orange. August 2, 2021.

Coastal Environmental Rights Foundation v. Watkins Manufacturing Corporation, Case No. ’18CV0555GPC KSC, in the United States District Court, Southern District of California. October 29, 2019.

Suncoast Waterkeeper, Our Children’s Earth Foundation, Ecological Rights Foundation v. City of Gulfport, Case No. 8:17-CV-35-T-24MAP, in the United States District Court, Middle District of Florida. June 4, 2019.

Connecticut General Life Insurance Company v. 7510 Hazard, LLC, et al., Case No. 2013-00036924-CUBC-CTL, in the Superior Court of the State of California, County of San Diego (Central). May 10, 2018.

Glen Harmer v. Steven M. Thomas et al., Case No. 4:16-cv-04233-JSW, in the United States District Court, Northern District of California. July 18, 2017.

Robert Bruncati and Maureen Bruncati v. Billy Wayne Andrews, Jr., et al., Case No. CIVDS1309044, in the Superior Court of the State of California, County of San Bernardino, San Bernardino District. August 24, 2015, and September 8, 2015.

City of Cerritos, et al., v. Water Replenishment District of Southern California, Case No. BS128136, in the Superior Court of the State of California, County of Los Angeles. November 24, 2014.

The Boeing Company et al. v. State of Washington, Department of Ecology, Appeal of the 2010 Industrial Stormwater General Permit, Pollution Control Hearings Board, State of Washington. Case No. 09-140. 2011.

Puget Soundkeeper Alliance v. BNSF Railway Co., Case No. C09-1087-JCC, in the United States District Court, Western District of Washington at Seattle. 2011.

Trials and Hearings

Hearing Proceedings Regarding Petition Filed by the Department of Water Resources Requesting Changes in Water Right Permits for the Delta Conveyance Project, California State Water Resources Control Board Administrative Hearing Office. September 2, 2025; September 29, 2025; October 10, 2025;

October 29, 2025; June 4, 2026; June 5, 2026.

The Parish of Plaquemines v. Rozel Operating Co. et al., No. 60-996, Division B, 25th Judicial District Court for the Parish of Plaquemines, State of Louisiana. March 22, 2025.

Bob Bahram Hedayati, Maryam Hashemi v. Ravinder Bhatnagar, Does 1 through 50, Case No. 19CV357264, Superior Court of the State of California, County of Santa Clara/Unlimited Jurisdiction. September 6, 2024.

Columbus Water Works v. Jeff Cown, Director, Environmental Protection Division, Georgia Department of Natural Resources, and Chattahoochee Riverkeeper, Inc., Docket No.: 2114835, 2114835-OSAH-BNR-WQC-106-Walker, Office of State Administrative Hearings, State of Georgia. April 22 and May 7, 2024.

City of Riverbank, a California municipal corporation, v. Schneider Electric Buildings Americas, Inc., Case No. AAA 01-21-0018-0516, American Arbitration Association. February 8, 2024.

Inland Empire Paper Company v. State of Washington, Department of Ecology, Appeal of NPDES Permit No. WA0000825, Pollution Control Hearings Board, State of Washington. PCHB No. 22-061. November 9, 2023.

California Communities Against Toxics v. Trojan Battery Company, et al., Case No. 2:18-cv-02189-SVW-FFM, in the United States District Court, Central District of California. December 13, 2018.

Hearing Proceedings Regarding Petition Filed by the Department of Water Resources and U.S. Bureau of Reclamation Requesting Changes in Water Rights for the California WaterFix Project, California State Water Resources Control Board. December 14, 2016; May 23, 2017; June 22, 2017; March 23, 2018; March 26, 2018; and August 24, 2018.

Robert Bruncati and Maureen Bruncati v. Billy Wayne Andrews, Jr., et al., Case No. CIVDS1309044, in the Superior Court of the State of California, County of San Bernardino, San Bernardino District. 2015.

The Boeing Company et al. v. State of Washington, Department of Ecology, Appeal of the 2010 Industrial Stormwater General Permit, Pollution Control Hearings Board, State of Washington. Case No. 09-140. 2011.