

SUSAN C. PAULSEN

Vice President and Senior Scientist, Flow Science Incorporated

YEARS OF EXPERIENCE

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EDUCATION

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

M.S. Civil Engineering, California Institute of Technology, 1993

B.S. Civil Engineering (with honors), Stanford University, 1990

PROFESSIONAL AFFILIATIONS

Registered Professional Engineer in California (C66554)

KEY QUALIFICATIONS

Dr. Paulsen has been employed at Flow Science since 1997, where she has project responsibility for work involving environmental fate and transport. Dr. Paulsen has particular expertise in the analysis of fate, transport, and water quality in estuarine systems, including the San Francisco Bay-Delta system, where she developed a unique fingerprinting method for the analysis of mixing patterns and the sources of salinity in the Delta. At Flow Science she has been involved in projects combining hydrodynamics, aquatic chemistry, and the environmental fate of various constituents. Dr. Paulsen also oversees water quality regulatory and policy analysis for Flow Science.

EXPERIENCE

Dr. Paulsen has designed and implemented field studies in reservoir, river, estuarine, and ocean environments using both dye and elemental tracers to evaluate the impact of treated wastewater, thermal, and agricultural discharges on receiving waters and drinking water intakes. Dr. Paulsen has expertise designing and managing modeling studies to evaluate transport and mixing, including the siting and design of diffusers, and she has conducted water quality analyses for storm water runoff, NPDES permitting, irrigation, and wastewater and industrial process water treatment facilities.

Dr. Paulsen has designed studies utilizing the Fischer Delta Model (FDM), three-dimensional CFD modeling, longitudinal dispersion modeling, and Monte Carlo modeling to evaluate water quality impacts, to develop proposed NPDES permit limits, and to analyze and develop TMDLs. She has designed and implemented tracer and/or modeling studies for a number of agencies including Contra Costa Water District, CALFED, DWR, Irvine Ranch Water District, and the Sacramento Regional County Sanitation District. Dr. Paulsen has also managed and designed studies to investigate the disposal of brines from salt production and reverse osmosis (RO) facilities, and she has participated in several intensive multi-disciplinary studies of the fate and transport of both organic and inorganic pollutants, including DDT, copper, and selenium, in surface and ground waters and sediments. Dr. Paulsen has also studied the use of indicator bacteria as water quality objectives and the behavior of bacteria in the environment.

Dr. Paulsen has extensive expertise with water quality regulation in California and served as primary author for a comprehensive review of the administrative record of the Los Angeles Basin Plan. She has worked on temperature compliance models, NPDES permitting, permit compliance, master planning and EIR/EIS processes, and TMDL development. She has expertise regarding the importance of atmospheric deposition, soil erosion, and wildfires on storm water quality, the development of numeric limits for storm flows, and the use of indicator bacteria as a measure of water quality. Dr. Paulsen has also provided testimony to the California State Water Resources Control Board and Regional Boards in water rights and permitting issues, has spoken extensively on regulatory issues, and currently serves on the State Board's Sediment Quality Objective Advisory Committee.