

ERICSON JOHN LIST
President, Flow Science Incorporated
Principal Consultant, Environmental Defense Sciences
Professor *Emeritus* of Environmental Engineering Science
California Institute of Technology

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PERSONAL

Citizenship:	U.S.A. Passport No. 031734111
Birthdate:	March 27, 1939
Place of Birth:	Whakatane, New Zealand
Home Address:	2 Wharfside St., Ste. 4A, Charleston, SC 29401

EDUCATION

1965 Ph.D.	California Institute of Technology (Applied Mechanics and Mathematics)
1962 M.E. (Civil Eng.)	University of Auckland, N.Z.
1962 B.Sc. (Mathematics)	University of Auckland, N.Z.
1961 B.E. (First Class)	University of Auckland, N.Z.

POSITIONS HELD

Dr. List is currently President of Flow Science Incorporated and Principal Consultant at Environmental Defense Sciences. He was Professor of Environmental Engineering Science at the California Institute of Technology from 1978-1997. He joined the faculty at Caltech in 1969 as an Assistant Professor, after spending three years as a lecturer and senior lecturer at the University of Auckland. For the period 1980-1985, he was Executive Officer for Environmental Engineering Science at Caltech.

TEACHING EXPERIENCE

Fluid mechanics, turbulent diffusion, density-stratified flow, flow in porous media, introductory oceanography and meteorology, classical applied mathematics, singular perturbations, non-linear waves, mathematical programming and simulation, probability and statistics, solid mechanics, hydrologic transport processes, environmental fluid mechanics.

RESEARCH INTERESTS

Turbulent diffusion, buoyancy-modified flows, particle coagulation, coastal ocean and estuarine processes, transient flows, flow in porous media.

INSTITUTE AFFAIRS

Professor List served on sixteen different administrative and faculty committees, including a term as Vice-Chair of the Faculty (1979-81), and chair of the following Faculty Committees: Athletics and Physical Education (1975-79), Curriculum (1981-84), Membership and Bylaws (1979-81), and Nominating (1978-79). He served on the JPL Classified Research Oversight Committee for a period of six years.

EDITOR

Journal of Hydraulic Engineering, American Society of Civil Engineers, 1984-1989

MEMBERSHIP

Fellow of American Society of Civil Engineers
Chair, Hydrologic Transport and Dispersion Committee, 1983-84
Chair, Awards Committee, Hydraulics Division, 1994
Co-Chair, Third International Symposium on Stratified Flows, 1987
Consulting Engineers Association of California
Chair, Engineering Excellence Committee, 1989

AWARDS AND RECOGNITION

Fulbright Scholar, 1962
National Science Foundation Award for Special Creativity, 1982
Who's Who in America
Who's Who in Engineering
Who's Who in the West

REGISTRATION

Professional Civil Engineer No. 36791, State of California
Professional Civil Engineer No. 57786, State of Florida
Professional Civil Engineer No. 027270, State of North Carolina
Professional Civil Engineer No. 20646, State of South Carolina

VISITING COMMITTEES

University of California, Irvine, School of Engineering, 1983, 1989
Stanford University, Palo Alto, Department of Civil Engineering, 1984
University of British Columbia, School of Engineering, 1990

BOARDS

Flow Science Incorporated, Pasadena, California (Chair) 1982-Present
City of Pasadena, Blue Ribbon Commission 1976-1978
Environmental Defense Sciences, Pasadena, California 1997-Present

CONSULTING

Professor List has consulted with more than 400 industrial organizations, consulting engineers and governmental agencies, including PetroBras, Southern California Edison, Chevron, IBM Corporation, Exxon, Cargill Corporation, City and County of San Francisco, City of Seattle, City of San Diego, City of Los Angeles, Los Angeles County, Sacramento County, U.S. Army Corps of Engineers, U.S. Navy, Metropolitan Water District of Southern California, City and County of Honolulu, Southern Nevada Water Agency. He has authored reports in the following areas of work: geothermal flows, river control modeling, power plant cooling systems, brine and wastewater diffusers, dredge spoil disposal, river dispersion, solar heat storage systems, reservoir destratification and mixing, well testing and failure, pulsation control and water hammer, pipeline failure, groundwater mass balance, ocean current and temperature analysis, acoustic resonance in piping systems, gas transfer, and ocean dispersion, biodegradation of organo-chlorines.

PUBLICATIONS

Professor List is co-author of the texts *Mixing in Inland and Coastal Waters* (Academic Press, 1979), *Turbulent Buoyant Jets and Plumes* (Pergamon Press, 1983), and *Handbook of Groundwater Development* (Wiley, 1990). In addition, he is the author or co-author of the following refereed publications:

- [1] "Steady flow of precipitation to an infinite series of tile drains above an impervious layer," *J. Geophys. Res.*, **29**: 3371-3381, 1964.
- [2] "A quasi-stable density-stratified flow in a saturated porous medium," *Proc. 2nd Aus. Conf. Fluid Mech.*, Auckland, N.Z., December 1965.
- [3] "Lateral dispersion in saturated porous media," *J. Geophys. Res.*, **72**: 2531-2541, 1967 (with N.H. Brooks).
- [4] "A two-dimensional sink in a density-stratified porous medium," *J. Fluid Mech.*, **33**: 529-543, 1968.
- [5] "An exact solution for a diffusive flow in a porous medium," *J. Fluid Mech.*, **36**: 17-19, 1969.
- [6] "Laminar momentum jets in a stratified fluid," *J. Fluid Mech.*, **45**: 461-574, 1971.

- [7] "A technique for smoothing river flows during hydro-electric power production," *Water Resources Research*, 7(6): 1437-1447, 1971 (with R.B. Tattle).
- [8] "Energy and the environment in Southern California," *Engineering and Science*, 35(2): 14-17, 1971.
- [9] "A study on disposal of brine in an estuary," *J. Water Polln. Cont. Fed.*, 45(11): 2335-2344, 1973 (with A.B. Pincince).
- [10] "Turbulent entrainment in buoyant jets and plumes," *J. Hyd. Div., ASCE*, 99(HY9):1461-1474, September 1973 (with J. Imberger).
- [11] "Turbulence measurements in a two-dimensional buoyant jet using laser-Doppler velocimetry," *Proc. LDA Symposium*, Tech. Univ. of Denmark, Copenhagen, August 1975 (with N.E. Kotsovinos).
- [12] "Hydraulic modeling of thermal outfall diffusers - Interpretation of results," *Proc. XVI IAHR Congress*, Sao Paulo, Brazil, July 1975 (with R.C.Y. Koh).
- [13] "Variations in coastal temperatures on the Southern and Central California coast," *J. Geophys. Res.*, 81(12):1971-1979, April 1976 (with R.C.Y. Koh).
- [14] "Spreading of buoyant discharges," *Proc. 9th Intern. Conf. Heat and Mass Transfer*, Int. Centre for Heat and Mass Transfer, Dubrovnik, Yugoslavia, 171-182, September 4, 1976 (with J.-C Chen).
- [15] "Plane turbulent buoyant jets - Part 1: Integral properties," *J. Fluid Mech.*, 81(1): 25-44, June 9, 1977 (with N.E. Kotsovinos).
- [16] "Turbulent jets and plumes," *Ann. Rev. of Fluid Mech.*, 14:189-212, 1982.
- [17] "Formation of frontal waves in density-induced fluid spreading," *Symposium on Flows in Stratified Fluids*, ASME Winter Annual Meeting, Boston, MA, 1983.
- [18] "Monte Carlo simulation of particle coagulation in continuous size distributions, I: Brownian motion and fluid shearing," *J. Fluid Mech.*, 143: 367-385, 1984 (with H.J. Pearson and I.A. Valioulis).
- [19] "Monte Carlo simulation of particle coagulation in continuous size distributions, II: Interparticle forces and the quasi-equilibrium hypothesis," *J. Fluid Mech.*, 143: 387-411, 1984 (with I.A. Valioulis and H.J. Pearson).
- [20] "Numerical simulation of a sedimentation basin, I: Model development," *Env. Sci. Tech.*, 18: 242-247, 1984 (with I.A. Valioulis).

- [21] "Numerical simulation of a sedimentation basin, II: Design application," *Env. Sci. Tech.*, **18**:248-253, 1984 (with I.A. Valioulis).
- [22] "Collision efficiencies of diffusing spherical particles accounting for hydrodynamic, van der Waal's and electrostatic forces," *Adv. Colloid and Interf. Sci.*, **20**:1-20, 1984 (with I.A. Valioulis).
- [23] "A numerical evaluation of the stochastic completeness of the kinetic coagulation equation," *J. Atmos. Sci.*, **41**(16):2516-2529, 1984 (with I.A. Valioulis).
- [24] "Statistical and spectral properties of tracer concentration in round buoyant jets," *Int. J. Heat and Mass Trans.*, **30**(10):2059-2071, 1987 (with P.N. Papanicolaou).
- [25] "Turbulence structure near a sharp density interface," *J. Fluid Mech.*, **189**: 189-209, 1988 (with I.A. Hannoun and H.J.S. Fernando).
- [26] "Turbulent mixing at a shear-free density interface," *J. Fluid Mech.*, **189**: 211-234, 1988 (with I.A. Hannoun).
- [27] "Investigations of round vertical turbulent buoyant jets," *J. Fluid Mech.*, **195**: 341-391, 1988 (with P.N. Papanicolaou).
- [28] "The Third International Symposium on Density-Stratified Flows," *J. Hydr. Eng., Proc. ASCE*, **114**(2):125-133, 1988 (with G. Jirka).
- [29] "Large-scale structure in the far field of buoyant jets," *J. Fluid Mech.*, **209**: 151-190, 1989 (with D. Papantoniou).
- [30] "Diffusion and dispersion in coastal waters," *J. Hydr. Eng.*, **116**(10):1158-1179, 1990 (with G. Gartrell and C.D. Winant).
- [31] "Kinetic analysis of virus adsorption and inactivation in batch experiments," *Water Resources Research*, **29**(7):2067-2085, 1993 (with S. Grant and M. Lidstrom).
- [32] "An experimental investigation of vertical mixing in two-layer density- stratified shear flows," *Oceans and Atmospheres*, **19**:147-174, 1993 (with G. Sullivan).
- [33] "Transition from jet plume dilution to ambient turbulent mixing," *Recent Res. Advances in the Fluid Mechanics of Turbulent Jets and Plumes*, 1-11, 1994 Kluwer Publishers (with Regina Dugan).
- [34] "On mixing and transport at a sheared density interface," *J. Fluid Mech.* **273**:213-239, 1994 (with G. Sullivan).

- [35] "Sudden pressure drop and pipeline failure - Case studies," *Hydraulics of Pipelines*, ASCE, pp.339-355, 1994
- [36] "Environmental Fluid Mechanics" *Research Trends in Fluid Mechanics*, J.C. Lumley et al (Eds), American Institute of Physics, pp.148-166, 1996.
- [37] "A novel approach for determining flow patterns in a reservoir," *Proc. North American Lake Management Society*, Minneapolis, Minn. Nov. 14-15, 1996 (with G. Pasek, I.A. Hannoun and S.C. Paulsen)
- [38] "A study of transport and mixing in natural waters using ICP-MS: Water-particle interactions" *Water, Air and Soil Pollution*, **99**:146-156, 1997 (with S.C. Paulsen).
- [39] "Tracing discharges in ocean environments using a rare earth tracer" *Proc. 27th IAHR Congress*, San Francisco, August, 1997 (with S.C. Paulsen).
- [40] "Simulation of sludge pumping" *Water Env. Res.* **70**(2): 197-204, 1997 (with I.A. Hannoun and W-L. Chiang)
- [41] "Using hydraulic modeling to optimize contact time" *J. AWWA*, **90**(8): 77-87, 1998 (with I.A. Hannoun and P. Boulos).
- [42] "Vapor cavity formation and collapse: Field evidence for major pipeline damage" FEDSM99-6886, *Proc. 3rd ASME/JSME Joint Fluids Eng. Conf*, San Francisco, July 18-23, 1999 (with R. Solbrig, J. Burnam and J. Hoggatt)
- [43] "Modeling variability in ²¹⁰Pb and sediment fluxes near Whites Point Outfalls, Palos Verdes Shelf, California. *Env. Sci Tech.*, **33**:3077-3085, 1999 (with S. C. Paulsen and P.H. Santschi)
- [44] "Comment on 'In situ measurements of chlorinated hydrocarbons off the Palos Verdes Peninsula, California" *Env. Sci. Tech.*, **33**:3927-3928, 1999 (with S.C. Paulsen and P.H. Santschi).