

## DAVID K. RALSTON

Applied Ocean Physics & Engineering, MS #11  
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### EDUCATION

Ph.D., Civil & Environmental Engineering University of California, Berkeley, CA	2005
M.S., Civil & Environmental Engineering Stanford University, Palo Alto, CA	1998
B.S. and B.A., Civil & Environmental Engineering, <i>summa cum laude</i> Rice University, Houston, TX	1996

### PROFESSIONAL EXPERIENCE

<i>Associate scientist</i>	2011 – present
<i>Assistant scientist</i>	2007 – 2011
<i>Postdoctoral scholar</i> Applied Ocean Physics & Engineering, Woods Hole Oceanographic Institution, Woods Hole, MA	2005 – 2007
<i>Graduate researcher &amp; instructor</i> University of California, Berkeley, CA	2000 – 2005
<i>Environmental engineer</i> Defense Nuclear Facilities Safety Board, Washington, DC	1996 – 2000

### RESEARCH INTERESTS

Fluid mechanics and scalar transport in estuaries and the coastal ocean, including estuarine exchange, dispersion, and residence time, sediment transport, stratified turbulence, bathymetric effects on shallow tidal flows, frontal processes, and physical-biological coupling.

### PUBLICATIONS

- Ralston, DK, H Jiang, and JT Farrar, 2013. Waves in the Red Sea: response to monsoonal and mountain gap winds. *Continental Shelf Res.*, 65:1-13, <http://dx.doi.org/10.1016/j.csr.2013.05.017>.
- Ralston, DK, WR Geyer, and JC Warner, 2012. Bathymetric controls on sediment transport in the Hudson River estuary: lateral asymmetry and frontal trapping. *J. Geophys Res.*, 117, C10013, doi:10.1029/2012JC008124.
- Nidzieko, NJ, and DK Ralston, 2012. Tidal asymmetry and velocity skew over tidal flats and shallow channels within a macrotidal river delta. *J. Geophys. Res.*, 117, C03001, 17 pp, doi:10.1029/2011JC007384.
- Ralston, DK, WR Geyer, PA Traykovski, and NJ Nidzieko, 2013. Effects of estuarine and fluvial processes on sediment transport over deltaic tidal flats, *Continental Shelf Res.*, 60, S40-S57, doi:10.1016/j.csr.2012.02.004.
- Chen S-N, WR Geyer, DK Ralston, and JA Lerczak, 2012. Estuarine exchange flow quantified with isohaline coordinates: contrasting long and short estuaries, *J. Phys. Oceanogr.*, 42, 748-763, doi: 10.1175/JPO-D-11-086.1.
- Raubenheimer, B., DK Ralston, S Elgar, D Giffen, and R Signell, 2013. Winds on the Skagit tidal flats, *Continental Shelf Research*, 60, S13-S21, doi:10.1016/j.csr.2012.02.001.
- Crespo, B.G., B.A. Keafer, D.K. Ralston, H. Lind, D. Farber, and D.M. Anderson, 2011. Dynamics of *Alexandrium fundyense* blooms and shellfish toxicity in the Nauset Marsh System of Cape Cod (Massachusetts, USA). *Harmful Algae*, 12: 26-38, doi: 10.1016/j.hal.2011.08.009.
- Levinton, JS, M Doall, DK Ralston, A Starke, and B Allam, 2011. Climate change, precipitation and impacts on an estuarine refuge from disease. *PLoS ONE*, 6(4): e18849. doi:10.1371/journal.pone.0018849.
- Geyer, WR and DK Ralston, 2011. The dynamics of strongly stratified estuaries. In: *Treatise on Estuarine and Coastal Science*, E. Wolanski and DS McLusky, Eds., vol. 2:37-51. Waltham: Academic Press.

Ralston, DK, WR Geyer, JA Lerczak, and M Scully, 2010. Turbulent mixing in a strongly forced salt wedge estuary. *J. Geophys. Res.*, 115, C12024, doi:10.1029/2009JC006061.

Chen S-N, WR Geyer, CR Sherwood, and DK Ralston, 2010. Sediment transport and deposition on a river-dominated tidal flat: An idealized model study. *J. Geophys. Res.*, 115, C10040, doi:10.1029/2010JC006248.

Ralston, DK, WR Geyer, and JA Lerczak, 2010. Structure, variability, and salt flux in a strongly forced salt wedge estuary. *J. Geophys. Res.*, 115, C06005, doi:10.1029/2009JC005806.

Ralston, DK and WR Geyer, 2009. Episodic and long-term sediment transport in the Hudson River estuary. *Estuaries and Coasts*, 32, 1130–1151, doi: 10.1007/s12237-009-9206-4.

Chen, S-N, LP Sanford, and DK Ralston, 2009. Lateral circulation and sediment transport driven by axial winds in an idealized, partially mixed estuary. *J. Geophys. Res.*, 114, C12006, doi:10.1029/2008JC005014.

Geyer, WR, ME Scully, and DK Ralston, 2008. Quantifying vertical mixing in estuaries. *Environ. Fluid Mech.*, 8, 495-509, doi:10.1007/s10652-008-9107-2.

Lerczak, JA, WR Geyer, and DK Ralston, 2008. The temporal response of the length of a partially-stratified estuary to changes in river flow and tidal amplitude, *J. Physical Oceanogr.*, 39(4):915-933, doi:10.1175/2008JPO3933.1.

Ralston, DK, WR Geyer, and JA Lerczak, 2008. Subtidal salinity and velocity in the Hudson River estuary: observations and modeling. *J. Physical Oceanogr.*, 38(4), 753-770.

Ralston, DK, DJ McGillicuddy, and DW Townsend, 2007. Asynchronous vertical migration and bimodal distribution of motile phytoplankton. *J. Plankton Res.*, 29(9), 803-821, doi:10.1093/plankt/fbm061.

Ralston, DK and MT Stacey, 2007. Tidal and meteorological forcing of sediment transport in tributary mudflat channels. *Continental Shelf Res.*, 27(10-11), 1510-1527, doi:10.1016/j.csr.2007.01.010.

Ralston, DK and MT Stacey, 2006. Shear and turbulence production across subtidal channels. *J. Marine Res.*, 64(1), 147-171, doi:10.1357/002224006776412359.

Ralston, DK and MT Stacey, 2005. Longitudinal dispersion and lateral circulation in the intertidal zone. *J. Geophys. Res.*, 110(C7), C07015, doi:10.1029/2005JC002888.

Ralston, DK and MT Stacey, 2005. Stratification and turbulence in subtidal channels through intertidal mudflats. *J. Geophys. Res.*, 110(C8), C08009, doi:10.1029/2004JC002650.

Stacey, MT and DK Ralston, 2005. The scaling and structure of the estuarine bottom boundary layer. *J. Physical Oceanogr.*, 35(1), 55-71.

## **HONORS AND AWARDS**

Office of Naval Research Young Investigator Award (2008)  
Woods Hole Oceanographic Institution Postdoctoral Scholar fellowship (2005)  
Phi Beta Kappa, Tau Beta Pi, and Chi Epsilon honor societies

## **PROFESSIONAL AFFILIATIONS**

American Geophysical Union, American Society of Civil Engineers, Coastal and Estuarine Research Federation.  
Professional Engineer, California