**CURRICULUM VITAE: W. ROCKWELL GEYER**

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Senior Scientist

Department of Applied Ocean Physics and Engineering

Woods Hole Oceanographic Institution

**EDUCATION:**

Ph.D. Physical Oceanography, University of Washington, Seattle, WA - 1985

M.S. Physical Oceanography, University of Washington, Seattle, WA - 1981

B.A. Geology, Dartmouth College, Hanover, NH - 1977

**PROFESSIONAL EXPERIENCE:**

2005-present Senior Scientist, Applied Ocean Physics & Engineering Dept. (AOPE), Woods Hole Oceanographic Institution (WHOI)

2011-2012 Acting Chair, AOPE,WHOI

2001-2005 Senior Scientist and Chair, AOPE, WHOI

* 1. Director, Rinehart Coastal Research Center WHOI

1991-2001 Associate Scientist, AOPE, WHOI

1987-1990 Assistant Scientist, AOPE, WHOI

**RESEARCH INTERESTS:**

Estuarine and coastal transport processes; sediment transport; contaminant transport; sustainability of coastal environments; numerical modeling of coastal environments.

**HONORS AND AWARDS:**

2014 AGU Fellow

2009 Excellence in Refereeing, American Geophysical Union (J. Geophys. Res.)

2008 Ian Morris Scholar, Horn Point Environmental Lab, University of Maryland

2006 Mary Sears Senior Scientist Chair for Excellence in Oceanography (WHOI)

2003 Pritchard Award, Estuarine Research Federation (best physics paper)

**RECENT PUBLICATIONS:**

Scully, M.E. and W.R. Geyer, 2012. The role of advection, straining and mixing on the tidal variability of estuarine stratification. *J. Phys. Oceanogr*., **42**, 855-868.

Ralston, D.K, W. R. Geyer and J.C. 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.

Ralston, D.K., W.R. Geyer, P.A. Traykovski and N.J. Nidzieko, 2013. Effects of estuarine and fluvial processes on sediment transport over deltaic tidal flats. *Cont. Shelf Res*., 60, S40-S57, doi:10.1016/j.csr.2012.02.004.

Chen, S-N, W.R. Geyer, and T.J. Hsu, 2013. A numerical investigation of the dynamics and structure of hyperpycnal river plumes on sloping continental shelves. J. Geophys. Res. 118,2702–2718, doi:[10.1002/jgrc.20209](http://dx.doi.org/10.1002/jgrc.20209).

Lavery, A.C., W.R. Geyer and M.E. Scully, 2013. Broadband acoustic imaging and quantification of stratified turbulence. *Journal of the Acoustical Society of America,* **134,** 40-54.

Burchard, H., Schuttelaars, H. M., & Geyer, W. R. 2013. Residual sediment fluxes in weakly-to-periodically stratified estuaries and tidal inlets. *Journal of Physical Oceanography*, *43*(9), 1841-1861.

Ralston, D. K., Warner, J. C., Geyer, W. R., & Wall, G. R., 2013. Sediment transport due to extreme events: The Hudson River estuary after tropical storms Irene and Lee. *Geophysical Research Letters*, *40*, 5451-5455.

Olabarrieta, M., W.R. Geyer and N. Kumar, 2014. The role of morphology and wave-current interaction at tidal inlets: an idealized modeling analysis. *J. Geophys. Res.*, 119, 8818-8837, doi:10.1002/2014JC010191.

J. Thomson, A.R. Horner-Devine, S. Zippel, C. Rusch, R. Geyer, 2014. Wave breaking turbulence at the offshore front of the Columbia River plume. *Geophys. Res. Let.* 14, 8987-8993.

Geyer, W.R. and P.A. MacCready, 2015. The estuarine circulation. *Annual Rev. Fluid Mech*., 46: 175-197.

Geyer, W. R. and D.K. Ralston, 2015. Estuarine Frontogenesis. *J. Phys. Oceanogr.,* **45**, 546-561.

Wang, T., W.R. Geyer and P Engel, 2015. Mechanisms of tidal oscillatory salt transport in a partially stratified estuary. *J. Phys. Oceanogr.,* 45, 2773-2789.

Holleman, C.R., W.R. Geyer and D.K. Ralston, 2016. Stratified turbulence and mixing efficiency in a salt wedge estuary. *J. Phys. Oceanogr*. 46, 1769-1783.

Wang, T., Geyer, W. R., & MacCready, P. (2017). Total exchange flow, entrainment, and diffusive salt flux in estuaries. *Journal of Physical Oceanography*, *47*(5), 1205-1220.

Honegger, D. A., Haller, M. C., Geyer, W. R., & Farquharson, G. (2017). Oblique internal hydraulic jumps at a stratified estuary mouth. *Journal of Physical Oceanography*, *47*(1), 85-100.

Geyer, W. R., Ralston, D. K., & Holleman, R. C. (2017). Hydraulics and mixing in a laterally divergent channel of a highly stratified estuary. *Journal of Geophysical Research: Oceans*.

Ralston, D. K., Cowles, G. W., Geyer, W. R., & Holleman, R. C. (2017). Turbulent and numerical mixing in a salt wedge estuary: Dependence on grid resolution, bottom roughness, and turbulence closure. *Journal of Geophysical Research: Oceans*, *122*(1), 692-712.

Ralston, D.K. and W.R. Geyer (2017). Sediment transport time scales and trapping efficiency in a tidal river. *Journal of Geophysical Research Earth Surface Processes*, 122, 2042–2063.

Zhou, Z., Yu, X., Hsu, T. J., Shi, F., Rockwell Geyer, W., & Kirby, J. T. (2017). On nonhydrostatic coastal model simulations of shear instabilities in a stratified shear flow at high Reynolds number. *Journal of Geophysical Research: Oceans*, *122*(4), 3081-3105.

Geyer, W. R., & Ralston, D. K. (2018). A mobile pool of contaminated sediment in the Penobscot Estuary, Maine, USA. *Science of The Total Environment*, *612*, 694-707.

Li, X., Geyer, W. R., Zhu, J., & Wu, H. (2018). The Transformation of Salinity Variance: A New Approach to Quantifying the Influence of Straining and Mixing on Estuarine Stratification. *Journal of Physical Oceanography*, *48*(3), 607-623.

MacCready, P., Rockwell Geyer, W., & Burchard, H. (2018). Estuarine Exchange Flow is Related to Mixing through the Salinity Variance Budget. *Journal of Physical Oceanography*, 48, 1375-1384.

Olabarrieta, M, W.R. Geyer, G. Coco, C.T. Friedrichs and Z. Cao, in press, 2018. Effects of density-driven flows on the long-term morphodyanmic evolution of funnel-shaped estuaries. *Journal of Geophysical Research Earth Surface Processes, 123*(11), 2901-2924.

Ralston, DK, S Talke, WR Geyer, H Al’Zubadaei, and CK Sommerfield, 2018. Bigger tides, less flooding: Effects of dredging on barotropic dynamics in a highly modified estuary, *J. Geophys. Res.*, in press.

Chen, J-L, DK Ralston, WR Geyer, CK Sommerfield, and RJ Chant., 2018. Wave generation, dissipation, and disequilibrium in an embayment with complex bathymetry, *J. Geophys. Res., 123*(11), 7856-7876.

Wang, Tao and W.R. Geyer, 2018. The balance of salinity variance in a partially stratified estuary: implications for exchange flow, mixing, and stratification. *Journal of Physical Oceanography*, *48*(12), 2887-2899.

Kranenburg, W. M., Geyer, W. R., Garcia, A. M. P., & Ralston, D. K. 2019. Reversed lateral circulation in a sharp estuarine bend with weak stratification. *Journal of Physical Oceanography*, 49, 1619-1637. DOI: 10.1175/JPO-D-18-0175.1.

Ralston, D. K., & Geyer, W. R. (2019). Response to channel deepening of the salinity intrusion, estuarine circulation, and stratification in an urbanized estuary. *Journal of Geophysical Research: Oceans*, *124*(7), 4784-4802.

Corlett, W.B and W.R. Geyer (2020) Frontogenesis at estuarine junctions*. Estuaries and Coasts*, 43, 722-738.