Yun Li

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Education

Ph.D.	University of Maryland, College Park, 2012	Physical Oceanography
B.S.	Ocean University of China, 2004	Marine Science

Research Interests

Estuarine circulation and secondary circulation, stratification dynamics, biophysical interactions, hydrodynamic-biogeochemical models

Research Experience

2012-2014 Participate in NOAA FATE project to derive stratification indices for stock and ecosystem assessments from a data assimilative circulation model (FVCOM) on the Northwest Atlantic, including the Gulf of Maine and the Mid-Atlantic Bight region.

2007-2012 Participate in NOAA's Coastal Hypoxia Research Program Project (CHRP'07), develop numerical tools by coupling hydrodynamic model (ROMS) with two oxygen models, one with parameterization-based oxygen sources/sinks, and the other involving full biogeochemistry (RCA). Conduct process-oriented studies on understanding how climatic factors (i.e. winds, river flow) affect estuarine processes and hypoxia in Chesapeake Bay.

2010-2012 Participate in the NOAA IOOS Testbed project to Improve Models of Hypoxia in Chesapeake Bay. Hindcast hydrodynamic fields including currents and scalars using UMCES-ROMS and examine how model resolution influences bathymetry and thus the prediction of estuarine salt intrusion and stratification in Chesapeake Bay.

2009-2011 Investigate the dynamics of wind-induced lateral (secondary) circulation, and study its effects on estuarine exchange flow and stratification. Provide a new approach using streamwise vorticity to quantitatively indentify the control mechanisms of secondary circulation. Develop the stratification module for ROMS.

2009 Attend lectures on estuarine fluid dynamics and field experiments at Friday Harbor Laboratory, University of Washington. Participate in a field project in Saratoga Passage and Skagit Bay, WA, operate buoy-mounted HOBO meteorological device, and conduct final project on analyzing wind, CTD and ADCP data complemented by numerical simulation.

Field Experience

05/2010 R/V Caleta and R/V Neritic, three 1-day cruises, dye injection and patch measurement, along and cross-channel ADCP and CTD surveys in James River, VA

08/2009 R/V Centennial and R/V Auklet, two 1-day survey in Saratoga Passage and Skagit Bay, program HOBO meteorological device, learn to deploy/recover ADCP, mooring, and meteorological buoys, conduct CTD casts, record sonar images.

Peer-Reviewed Publications

1. **Li, Y.**, M. Li, and M. W. Kemp (2013), A budget analysis of the physical and biological controls on the seasonal cycle of dissolved oxygen in Chesapeake Bay, submitted to *J. Geophys. Res.*
2. Cheng, P**.**, M. Li, and **Y. Li** (2013), Generation of an estuarine sediment plume by a tropical storm, *J. Geophys. Res.*, doi: 10.1002/jgrc.20070.
3. Schlenger, A. J., E. North, Z. Schlag, **Y. Li**, David H. Secor, Katharine A. Smith, Edwin J. Niklitschek (2013), Modeling the influence of hypoxia on the potential habitat of Atlantic sturgeon (*Acipenser oxyrinchus*): a comparison of two methods, *Marine Ecology Progress Series*, doi: 10.3354/meps10248.
4. Lee, Y. J., B. R. Walter, M. Li and **Y. Li** (2013), The role of winter-spring wind and other factors controlling summer hypoxia in Chesapeake Bay, *Estuaries* and Coasts, doi: 10.1007/s12237-013-9592-5.
5. **Li, Y.** (2012) Impacts of winds and river flow on estuarine dynamics and hypoxia in Chesapeake Bay. *Ph.D. Thesis*, University of Maryland, College Park.
6. **Li, Y.** and M. Li (2012), Wind-driven lateral circulation in a stratified estuary and its effects on the along-channel flow, *J. Geophys. Res.*, *117*, C09005, doi: 10.1029/2011JC007829.
7. **Li, Y.** and M. Li (2011), Effects of winds on stratification and circulation in a partially mixed estuary, *J. Geophys. Res.*, *116*, C12012, doi:10.1029/2010JC006893.

Selected Presentations

1. **Li, Y.**, M. Li and L. Zhong, EOF Analysis of Wind-driven Currents in Chesapeake Bay, American Geophysical Union, Ocean Science Meeting, Orlando, FL, March 2-7, 2008.
2. **Li, Y.** and M. Li, Impact of Hurricane Isabel on hypoxia in Chesapeake Bay, American Geophysical Union, Fall Meeting, San Francisco, CA, December 12-19, 2008.
3. **Li, Y.** and M. Li, Modeling Hypoxia Response to River Flow and Wind Forcing in Chesapeake Bay, American Geophysical Union, Ocean Science Meeting, Portland, OR, February 22-26, 2010.
4. **Li, Y.** and M. Li, What Drives Interannual Variability of Hypoxia in Chesapeake Bay? The 37th Annual Mid-Atlantic Bight Physical Oceanography and Meteorology, MABPOM 2010, Stevens Institute of Technology, Hoboken, N.J.
5. **Li, Y.** and M. Li, Effects of Winds on Stratification and Circulation in a Partially Mixed Estuary. The 38th Annual Mid-Atlantic Bight Physical Oceanography and Meteorology, MABPOM 2011, University of Maryland Center for Environmental Science, Cambridge, M.D.

Awards

2008-2011	Horn Point Graduate Research Assistantship
2008	Outstanding Student Paper Award, AGU Fall Meeting, San Francisco
2008, 2009	Horn Point Student Travel Award

Computation Skills

Language	FORTRAN, C, Shell, MPI
Analysis tools	Matlab, NCL, NetCDF, GIS
Numerical models	ROMS (Regional Ocean Modeling System) RCA (three-dimensional water quality model including N, P, C, O_2 cycles and sediments, developed by HydroQual for application to marine and freshwater systems)