

## Curriculum Vitae

Name: **Ming Li**  
Address: University of Maryland Center for Environmental Science  
Horn Point Laboratory  
P.O. Box 775  
Cambridge, Maryland 21613  
Phone: (410) 221-8420  
Fax: (410) 221-8490  
Email: mingli@umces.edu  
Web: <http://www.umces.edu/ming-li>

### I. Research Areas

My research spans several areas in oceanography, including estuarine and coastal dynamics, sea level rise, storm surge, air-sea interaction, and turbulent mixing processes. I am also actively engaged in interdisciplinary research to address challenging environmental problems such as hypoxia, ocean acidification, and harmful algal blooms. A major focus of my current research is the regional impact of climate change and extreme weather events on estuaries and coastal oceans.

### II. Education

1991 Ph.D, University of Oxford, Geophysical Fluid Dynamics  
1983 B.Eng., Hohai University, Fluid Mechanics

### III. Professional Appointments

2009- Professor, Horn Point Lab., Univ. of Maryland Center for Environmental Science.  
2014-2018 Adjunct Professor, Department of Atmospheric and Oceanic Science, Univ. of Maryland, College Park.  
2001-2009 Associate Professor, Horn Point Lab., Univ. of Maryland Center for Environmental Science.  
1996-2001 Research Scientist, Institute of Ocean Sciences, Canada.  
1991-1996 Research Associate, University of Victoria, Canada.

### IV. Publications

[98] \*Zhang, F., **M. Li**, P.M. Glibert, S.H. Ahn. 2021. A three-dimensional mechanistic model for *Prorocentrum* minimum blooms in eutrophic Chesapeake Bay. *Science of the Total Environment*, <https://doi.org/10.1016/j.scitotenv.2020.144528>.

- [97] **Li, M.**, R. Li, W.-J. Cai, J.M. Testa, C. Shen. 2020. Effects of wind-driven lateral upwelling on estuarine carbonate chemistry. *Frontier in Marine Science*, doi: 10.3389/fmars.2020.588465.
- [96] Li, S., C. Chen, Z. Wu, R.C. Beardsley, **M. Li**. 2020. Impacts of ocean mixing layer on hurricanes: a simulation experiment with Hurricane Sandy. *Journal of Geophysical Research-Oceans*, 125, e2019JC015851. <https://doi.org/10.1029/2019JC015851>.
- [95] Wiernicki, C.J., M.H.P. O'Brien, F. Zhang, V. Lyubchich, **M. Li**, D.H. Secor. 2020. The recurring role of storm disturbance on black sea bass (*Centropristric striata*) movement behaviors in the Mid-Atlantic Bight. *PlosOne* 15(12): e0239919. <https://doi.org/10.1371/journal.pone.0239919>.
- [94] Ross, A.C., C.A. Stock, K.W. Dixon, M.A.M. Frierichs, R.R. Hood, **M. Li**, K. Pehion, V. Saba, P. St-Laurent, G.A. Vecchi. 2020. Estuarine forecasts at weather to subseasonal time scales. *Earth and Space Science*, doi: 10.1029/2020EA001179.
- [93] Cai, W.-J, R. Feely, J. Testa, **M. Li**, W. Evans, S. Alin, Y. Xu, G. Pelletier, A. Ahmed, D. Greeley, J. Netwon and N. Bednarksek. 2020. Natural and anthropogenic drivers of acidification in large estuaries. *Annual Review of Marine Science*, <https://doi.org/10.1146/annurev-marine-010419-011004>.
- [92] Boicourt, W.C., M. Licer, **M. Li**, M. Vodopivec and V. Malacic. 2020. Sea state: recent progress in the context of climate change. Chapter 3 in “Coastal Ecosystems in Transition: A comparative analysis of the Northern Adriatic and Chesapeake Bay”, Geophysical Monograph 256. Edited by Malone, Malej and Faganeli. pp. 21-48. ISBN: 978-1-119-54358-9.
- [91] **Li, M.**, F. Zhang, Y. Guo and X. Wang. 2020. Probabilistic projections of high tide flooding for the State of Maryland in the 21<sup>st</sup> century. Chapter 4 in *Evaluating Climate Change Impacts*. Edited by Lyubchich, Gel, Kilbourne, Miller, Newlands and Smith. Chapman and Hall/CRC. ISBN 9780815392378. pp. 71-94. doi: <https://doi.org/10.1201/9781351190831>
- [90] **Li, M.**, W. Ni, F. Zhang, P.M. Glibert and C-H. Lin. 2020. Climate-induced interannual variability and projected change of two harmful algal bloom taxa in Chesapeake Bay, U.S.A. *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2020.140947.
- [89] **Li, M.**, F. Zhang, S. Barnes and X. Wang. 2020. Assessing storm surge impacts on coastal inundation due to climate change: Case studies on Baltimore and Dorchester County in Maryland. *Natural Hazards*, 103, 2561–2588, doi: 10.1007/s11069-020-04096-4.

- [88] Glibert, P.M., A.H.W. Beausen, A.F. Bouwman, J.M. Burkholder, K.J. Flynn, C.A. Heil, **M. Li**, C-H. Lin, C.J. Madden, A. Mitra, W. Nardon, G. Silsbe, Y. Song, F. Zhang. 2020. Multifaceted climate change and nutrient effects on harmful algae require multifaceted models. Chapter 12 in *Climate change and marine and freshwater toxins*. Edited by Botana LM, C. Louzao and N. Vilariño), 2nd edition. DeGruyter Publishers. ISBN 978-3-11-062292-8. pp. 473-518. doi: 10.1515/9783110625738-012. <https://www.degruyter.com/view/book/9783110625738/10.1515/9783110625738-012.xml>
- [87] \*Ni, W., **M. Li**, J.M. Testa. 2020. Discerning effects of warming, sea level rise and nutrient management on long-term hypoxia trend in Chesapeake Bay. *Science of the Total Environment*, doi: 10.1016/j.scitotenv.2020.139717
- [86] Su, J., W-J. Cai, J. Brodeur, B. Chen, N. Hussain, C. Ni, Y. Yao, J. Testa, **M. Li**, X. Xie, W. Ni, K.M. Scaboo, Y. Xu, J. Cornwall, C. Gurbisz, M.S. Owns, G.G. Waldbusser, M. F., W.M. Kemp. 2020. Chesapeake Bay acidification buffered by spatially decoupled carbonate mineral cycling. *Nature Geosciences*, 13, 441–447, doi: <https://doi.org/10.1038/s41561-020-0584-3>.
- [85] Shen, C., J.M. Testa, **M. Li**, W-J Cai. 2020. Understanding anthropogenic impacts on pH and aragonite saturation in Chesapeake Bay: insights from a 30-year model study. *Journal of Geophysical Research–Biogeosciences*, 125, e2019JG005620. <https://doi.org/10.1029/2019JG005620>.
- [84] Ross, A.C., R.G. Najjar, **M. Li**. 2020 A metamodel-based analysis of the sensitivity and uncertainty of the response of Chesapeake Bay salinity and circulation to projected climate change. *Estuaries and Coasts*, <https://doi.org/10.1007/s12237-020-00761-w>.
- [83] \*Ni, W., **M. Li**, A.C. Ross and R.G. Najjar. 2019. Large projected decline in dissolved oxygen in a eutrophic estuary due to climate change. *Journal of Geophysical Research-Oceans*, doi:10.1029/2019JC015274.
- [82] Palinkas, C.M., J.M. Testa, J.C. Cornwall, **M. Li**, and L.P. Sanford. 2019. Influences of a River Dam on Delivery and Fate of Sediments and Particulate Nutrients to the Adjacent Estuary: Case Study of Conowingo Dam and Chesapeake Bay. *Estuaries and Coasts*, <https://doi.org/10.1007/s12237-019-00634-x>.
- [81] Shen, C., J. Testa, W. Ni, W-J. Cai, **M. Li**, and W. Kemp. 2019. Ecosystem metabolism and carbon balance in Chesapeake Bay: A 30-year analysis using a coupled hydrodynamic-biogeochemical model. *Journal of Geophysical Research-Oceans*, 124, <https://doi.org/10.1029/2019JC015296>.
- [80] Shen, C., J.M. Testa, **M. Li**, W-J Cai, G.G. Waldbusser, W. Ni, W.M. Kemp, J. Cornwall, B. Chen, J. Brodur, and J. Su. 2019. Controls on carbonate system

dynamics in a coastal plain estuary: a modelling study. *Journal of Geophysical Research-Biogeosciences*, 124, <https://doi.org/10.1029/2018JG004802>.

- [79] \*Zhang, F. and **M. Li**. 2019. Impacts of ocean warming, sea level rise and coastline management on storm surge in a semi-enclosed Bay. *Journal of Geophysical Research-Oceans*, 124, <https://doi.org/10.1029/2019JC015445>.
- [78] \*Xie, X. and **M. Li**. 2019. Generation of internal lee waves by lateral circulation in a coastal plain estuary. *Journal of Physical Oceanography*, 49 (7): 1687-1697, doi: 10.1175/JPO-D-18-0142.1.
- [77] Huang, W-J, W-J Cai, X, Xie and **M. Li**. 2019. Wind-driven lateral variations of partial pressure of carbon dioxide in a large estuary. *Journal of Marine Systems*, 195, doi: 10.1016/j.jmarsys.2019.03.002.
- [76] Juarez, B., A. Valle-Levinson, R. Chant and **M. Li**. 2019. Observations of the lateral structure of wind-driven flow in a coastal plain estuary. *Estuarine, Coastal and Shelf Science*, doi: 10.1016/j.ecss.2018.11.018.
- [75] \*Xie, X., **M. Li** and W. Ni. 2018. Roles of wind-driven currents and surface waves in sediment resuspension and transport during a tropical storm. *Journal of Geophysical Research-Oceans*, doi: 10.1029/2018JC014104.
- [74] \*Liu, W., **M. Li**, R. Chant, E. Hunter and A. Valle-Levinson. 2018. Time and scale dependence in estuarine longitudinal dispersion. *Journal of Geophysical Research-Oceans*, doi: 10.1029/2017JC013397.
- [73] \*Zhang, F., **M. Li**, and T. Miles. 2018. Generation of near-inertial currents on the Mid-Atlantic Bight by Hurricane Arthur. *Journal of Geophysical Research-Oceans*, 123, doi: 10.1029/2017JC013584.
- [72] \*Xie, X. and **M. Li**. 2018. Effects of wind straining on estuarine stratification: A combined observational and modelling study. *Journal of Geophysical Research-Oceans*, doi: 10.1002/2017JC013470.
- [71] Glibert, P.M., G. Pitcher, S. Bernard and **M. Li**. 2018. Advancements and continuing challenges of emerging technologies and tools for detecting harmful algal blooms, their antecedent conditions and toxins, and applications in predictive models. Chapter 18 in *Global Ecology and Oceanography of Harmful Algal Blooms*, edited by P.M. Glibert, E. Berdalet, M.A. Burford and G.C Pitcher and M. Zhou. Springer. ISBN: 978-3-319-70068-7, 339-357, doi: 10.1007/978-3-319-70069-4\_18.
- [70] Secor, D. H., F. Zhang, M.H. O'Brien, and **M. Li**. 2018. Ocean destratification and fish evacuation caused by a Mid-Atlantic tropical storm. *ICES-Journal of Marine Science*, 75 (2), 573-584, doi:10.1093/icesjms/fsx241.

- [69] **Li, M.**, W. Liu, R. Chant and A. Valle-Levinson. 2017. Flood-ebb and spring-neap variations of lateral circulation in the James River estuary. *Continental Shelf Research*, 148, 9-18, doi: <https://doi.org/10.1016/j.csr.2017.09.007>
- [68] Ross, A.C., R.G. Najjar, **M. Li**, S.B. Lee, F. Zhang and W. Liu. 2017. Fingerprints of sea-level rise on changing tides in the Chesapeake and Delaware Bays. *Journal of Geophysical Research-Oceans*, doi: 10.1002/2017jc012887.
- [67] Cai, W-J., W-J Huang, G. Luther, III, D. Pierrot, **M. Li**, J. Testa, M. Xue, A. Joesoef, R. Mann, J. Brodeur, Y-Y Xu, B. Chen, N. Hussain, G.G. Waldbusser, J. Cornwell, and W.M. Kemp. 2017. Redox reactions and weak buffering capacity lead to acidification in the Chesapeake Bay. *Nature Communications*, doi: 10.1038/s41467-017-00417-7.
- [66] \*Zhang, F., **M. Li**, A.C. Ross, S.B. Lee, and D-L. Zhang. 2017. Sensitivity analysis of Hurricane Arthur (2014) storm surge forecasts to WRF physical parameterizations and model configurations. *Weather and Forecasting*, 32, 1745-1764, doi: 10.1175/WAF-D-16-01218.1.
- [65] \*Xie, X., **M. Li**, and W. C. Boicourt. 2017. Breaking of internal solitary waves generated by an estuarine gravity current. *Geophysical Research Letters*, 44, doi:10.1002/2017GL073824.
- [64] Basdurak, N.B., K. Huguenard, A. Valle-Levinson, **M. Li**, and R. Chant. 2017. Parameterization of mixing by secondary circulation in estuaries. *Journal of Geophysical Research-Oceans*, 122, doi:10.1002/2016JC012328.
- [63] \*Xie, X., **M. Li**, M. Scully, and W.C. Boicourt. 2017. Generation of internal solitary waves by lateral circulation in a stratified estuary. *Journal of Physical Oceanography*, 47(7), 1789–1797, doi: <https://doi.org/10.1175/JPO-D-16-0240.1>
- [62] \*Lee, S.N., **M. Li** and F. Zhang. 2017. Impact of sea-level rise on tidal ranges in Chesapeake and Delaware Bays. *Journal of Geophysical Research-Oceans*, 122, doi:10.1002/2016JC012597.
- [61] \*Xie, X., **M. Li**, and W.C. Boicourt. 2017. Baroclinic effects on wind-driven lateral circulation in Chesapeake Bay. *Journal of Physical Oceanography*, 47 (2), 433-445, doi:10.1175/JPO-D-15-0233.1.
- [60] Testa, J.M., Y. Li, Y.J. Lee, **M. Li**, D.C. Brady, D.M. DiToro, and W.M. Kemp. 2017. Modeling physical and biogeochemical controls on dissolved oxygen in Chesapeake Bay: lessons learned from simple and complex approaches. Chapter 6 in *Modeling Coastal Hypoxia - Numerical Simulations of Patterns, Controls and Effects of Dissolved Oxygen Dynamics*, edited by D. Justic, K. Rose, R. Hetland, and K. Fennel. Springer International Publishing AG, Switzerland, 95-118, doi: 10.1007/978-3-310-54571-4\_5.

- [59] **Li, M.**, Y.J. Lee, J.M. Testa, Y. Li, W. Ni, W.M. Kemp and D.M. Di Toro. 2016. What drives interannual variability of hypoxia in Chesapeake Bay: Climate forcing versus nutrient loading? *Geophysical Research Letters*, 43, 2127–2134, doi:10.1002/2015GL067334.
- [58] Schulte, J.A., R.G. Najjar and **M. Li**. 2016. The influence of climate modes on streamflow in the Mid-Atlantic Region of the United States. *Journal of Hydrology-Regional Studies*, 5, 80-99.
- [57] Irby, I.D., M. A. M. Friedrichs, C. T. Friedrichs, A. J. Bever, R. R. Hood, L. W. J. Lanerolle, M. E. Scully, K. Sellner, J. Shen, J. Testa, **M. Li**, H. Wang, P. Wang, L. Linker, and M. Xia. 2016. Challenges associated with modeling low-oxygen waters in Chesapeake Bay: a multiple model comparison. 2016. *Biogeosciences*, 13, 2011–2028, doi:10.5194/bg-13-2011-2016.
- [56] Hugelund, K.D., A. Valle-Levinson, **M. Li**, R.J. Chant, and A.J. Souza. 2015. Linkage between lateral circulation and near-surface vertical mixing in the James River estuary. *Journal of Geophysical Research-Oceans*, doi:10.1002/2014JC010679.
- [55] Ross, A.C., R.G. Najjar, **M. Li**, M.E. Mann, S.E. Ford and B. Katz. 2015. Influences on decadal-scale variations of salinity in a coastal plain estuary. *Estuarine, Coastal and Shelf Science*, 157, 79-92.
- [54] \*Li, Y, **M. Li**, and W.M. Kemp. 2015. A budget analysis of bottom-water dissolved oxygen in Chesapeake Bay. *Estuaries and Coasts*, doi:10.1007/s12237-014-9928-9.
- [53] **Li, M.**, P. Cheng, R. Chant, A. Valle-Levinson and K. Arnott. 2014. Vortex dynamics of lateral circulation in a straight estuary. *Journal of Physical Oceanography*, 44 (10), 2777-2793, doi: 10.1175/JPO-D-13-0212.1.
- [52] Testa, J.M., Y. Li, Y. Lee, **M. Li**, D.C. Brady, D.M. DiToro and W.M. Kemp. 2014. Quantifying the effects of nutrient loading and carbon production in dissolved O<sub>2</sub> in Chesapeake Bay using a coupled hydrodynamic-biogeochemical model. *Journal of Marine System*, 139, 139-158.
- [51] Palinkas, C., J. Halka, **M. Li**, L. Sanford and P. Cheng. 2014. Event-driven sedimentation in upper Chesapeake Bay: insights from integrated field and model techniques. *Continental Shelf Research*, 86, 6-16.
- [50] **Li, M.**, X. Wang and P. Jia. 2014. Predicting and visualizing storm surges and coastal inundations: A case study from Maryland, U.S.A. Book Chapter in "Remote Sensing of Typhoon Impacts and Crisis Management", edited by Dangling Tang and Guangjun Sui, Springer, ISBN, 978-3-642-40694-2, 131-147.
- [49] \*Li, S., **M. Li**, G. P. Gerbi, J. Song. 2013. Roles of break waves and Langmuir

circulation in the surface boundary layer of a coastal ocean. *Journal of Geophysical Research-Oceans*, 118, 1-15, doi:10.1002/jgrc.20387.

- [48] \*Cheng, P, **M. Li** and Y. Li. 2013. Generation of an estuarine sediment plume by a tropical storm. *Journal of Geophysical Research-Oceans*, 118, 1–13, doi:10.1029/2012JC008225.
- [47] \*Lee, Y.J., W.R. Boyton, **M. Li** and Y. Li. 2013. Role of later winter-spring wind influencing summer hypoxia in Chesapeake Bay. *Estuaries and Coasts*, doi: 10.1007/s12237-013-9592-5.
- [46] \*Wang, D., H. Wang, **M. Li**, G. Liu and X. Wu. 2013. Role of Ekman transport versus Ekman pumping in driving summer upwelling in the South China Sea. *Journal of Ocean University of China*, 12, 355-365, doi: 10.1007/s11802-013-1904-7.
- [45] \*Yu, Q., Y. Wang, X. Tang, **M. Li**: 2013. River flow control on the phytoplankton dynamics of Chesapeake Bay. *Journal of Ocean University of China*, 12 (1), 103-114, doi: 10.1007/s11802-013-1976-4.
- [44] Boicourt, W.C., **M. Li**, N. Nidzieko, A.F Blumberg, N. Georgas, E J. Kelly, T.G. Updyke, W.D. Wilson. 2012. Observing the Urban Estuary: Review and Prospect. *Oceans, Marine Technology Society Journal*, doi:10.1109/Oceans.2012.6405120.
- [43] \*Li, Y. and **M. Li**. 2012. Wind-driven lateral circulation in a stratified estuary and its effects on the along-channel flow. *Journal of Geophysical Research-Oceans.*, 117, C09005, doi:10.1029/2011JC007829.
- [42] **Li, M.** and Z. Rong. 2012. Effects of tides on freshwater and volume transports in Changjiang River plume. *Journal of Geophysical Research-Oceans.*, 117, C06027, doi:10.1029/2011JC007716.
- [41] \*Jia, P. and **M. Li**. 2012. Dynamics of wind-driven circulation in a shallow lagoon with strong horizontal density gradient. *Journal of Geophysical Research-Oceans.*, 117, C05013, doi:10.1029/2011JC007475.
- [40] \*Jia, P. and **M. Li**. 2012. Circulation dynamics and salt budget in a lagoonal estuary. *Journal of Geophysical Research-Oceans*, 117, C01003, doi:10.1029/2011JC007124.
- [39] \*Rong, Z. and **M. Li**. 2012. Tidal effects on the bulge region of Changjiang River plume. *Estuarine, Coastal and Shelf Science*, 97, 149-160.
- [38] \*Wang, H., D. Wang, G. Liu, H. Wu and **M. Li**. 2012. Seasonal variation of eddy kinetic energy in the South China Sea. *Acta Oceanologica Sinica*, 31(1), 1-15.
- [37] \*Li, Y. and **M. Li**. 2011. Effects of winds on stratification and circulation in a partially mixed estuary. *Journal of Geophysical Research-Oceans*, 116, C1202, doi:10.1029/2010JC006893.

- [36] **Li, M.**, S. Radhakrishnan, U. Piomelli and W. R. Geyer. 2010. Large-Eddy Simulation of the tidal-cycle variations of an estuarine boundary layer. *Journal of Geophysical Research-Oceans*, 115, C08003, doi:10.1029/2009JC005702.
- [35] \*Zhong, L., **M. Li**, D.-L. Zhang and S. Zhang. 2010. Sensitivity of storm surge predictions to uncertainties in hurricane model forecasts. *Estuarine, Coastal and Shelf Science*, 90, 61-72.
- [34] **Li, M.**, L. Zhong and L. W. Harding. 2009. Sensitivity of plankton biomass and productivity to variations in physical forcing and biological parameters in Chesapeake Bay. *Journal of Marine Research*, 67, 667-700.
- [33] **Li, M.**, S. Vagle and D.M. Farmer. 2009. Large Eddy Simulations of upper-ocean response to a mid-latitude storm and comparison with observations. *Journal of Physical Oceanography*, 39, 2295-2309.
- [32] **Li, M.** and L. Zhong. 2009. Flood-ebb and spring-neap variations of stratification, mixing and circulation in Chesapeake Bay. *Continental Shelf Research*, 29, 4-14.
- [31] **Li, M.**, J. Trowbridge and W.R. Geyer. 2008. Asymmetric tidal mixing due to the horizontal density gradient. *Journal of Physical Oceanography*, 38, 418-434.
- [30] \*Zhong, L., **M. Li** and M.G. Foreman. 2008. Resonance and sea level variability in Chesapeake Bay. *Continental Shelf Research*, 28, 2565-2573.
- [29] Hilton, T. W., R. G. Najjar, L. Zhong and **M. Li**. 2008. Is there a signal of sea-level rise in Chesapeake Bay salinity? *Journal of Geophysical Research-Oceans*, 113: C09002, doi:10.1029/2007JC004247.
- [28] North, E.W., Z. Schlag, R. R. Hood, **M. Li**, L. Zhong, T. Gross and V. S. Kennedy. 2008. Larval vertical swimming behavior may influence the dispersal of oysters in Chesapeake Bay. *Marine Ecology Progress Series*, 359: 99-115.
- [27] **Li, M.**, L. Zhong, W. C. Boicourt, S. Zhang and D. Zhang. 2007. Hurricane-induced destratification and destratification in a partially-mixed estuary. *Journal of Marine Research*, 65, 169-192.
- [26] Edson, J., T. Crawford, J. Crescenti, T. Farrar, N. Frew, G. Gerbi, C. Helmig, T. Hristov, D. Khelif, A. Jessup, H. Jonsson, **M. Li**, L. Mahrt, W. McGillis, A. Plueddemann, L. Shen, E. Skillingstad, T. Stanton, P. Sullivan, J. Sun, J. Trowbridge, D. Vickers, S. Wang, Q. Wang, R. Weller, J. Wilkin, D. Yu, and C. Zappa. 2007. The Coupled Boundary Layers and Air-Sea Transfer Experiment in Low Winds (CBLAST-LOW), *Bulletin of the American Meteorological Society*, 88 (3), 341-356.



- [25] Piomelli, U., S. Radhakrishnan, L. Zhong and **M. Li**. 2007. Wall-layer models for large-eddy simulations of high Reynolds number non-equilibrium flows. In Palma, J. M. L. M. and Silva Lopes, A., editors, *Advances in Turbulence XI*, pages 47–54, Berlin. Springer.
- [24] **Li, M.**, L. Zhong, W. C. Boicourt, S. Zhang and D. Zhang. 2006. Hurricane-induced storm surges, currents and destratification in a semi-enclosed bay. *Geophysical Research Letters*, 33, L02604, doi:10.1029/2005GL024992.
- [23] \*Zhong, L. and **M. Li**. 2006. Tidal energy fluxes and dissipation in the Chesapeake Bay. *Continental Shelf Research*, 26, 752-770.
- [22] **Li, M.**, L. Zhong, and W. C. Boicourt. 2005. Simulations of Chesapeake Bay estuary: Sensitivity to turbulence mixing parameterizations and comparison with observations, *Journal of Geophysical Research-Oceans*, 110, C12004, doi:10.1029/2004JC002585.
- [21] **Li, M.**, C. Garrett and E. Skyllingstad. 2005. A regime diagram for classifying turbulent large eddies in the upper ocean. *Deep-Sea Research I*, 52, 259-278.
- [20] **Li, M.**, L. Sanford and S-Y Chao. 2005. Time-dependent effects in unstratified tidal flows: results from Large Eddy Simulations. *Estuarine, Coastal and Shelf Science*, 62, 193-204.
- [19] Gargett, A., **M. Li** and R. Brown. 2001. Testing mechanistic explanations of observed correlations between environmental factors and marine fisheries. *Canadian Journal of Fishery and Aquatic Science*, 58, 208-219.
- [18] Farmer, D.M., S. Vagle and **M. Li**. 2001. Bubble and temperature fields in Langmuir circulation. *Fluid Mechanics and the Environment: Dynamical Approaches*, Edited by John L. Lumley, 91-105. Springer.
- [17] **Li, M.** 2000. Estimating horizontal dispersion of floating particles in wind-driven upper ocean. *Spill Science and Technology*, 6(3), 255-261.
- [16] **Li, M.**, A. Gargett and K.L. Denman. 2000. What determines seasonal and interannual variability of phytoplankton and zooplankton in strongly estuarine system? *Estuarine, Coastal and Shelf Science*, 50, 467-488.
- [15] Garrett, C., **M. Li** and D.M. Farmer. 2000. The connection between bubble size spectra and energy dissipation rates in the upper ocean, *Journal of Physical Oceanography*, 30, 2163-2171.
- [14] **Li, M.**, A. Gargett and K.L. Denman. 1999. Seasonal and interannual variability of estuarine circulation in a box model of the Strait of Georgia and Juan de Fuca Strait. *Atmosphere-Ocean*, 37, 1-19.

- [13] Farmer, D.M., S. Vagle and **M. Li**. 1999. Wave breaking, turbulence and bubble distributions in the ocean surface layer. *The Wind-Driven Air-Sea Interface: Electromagnetic and Acoustic Sensing, Wave Dynamics, and Turbulent Fluxes*. Edited by M. L. Banner. University of New South Wales Press. 187-192. ISBN 0-7334-0586-X
- [12] Colbo, K. and **M. Li**. 1999. Parameterizing particle dispersion in Langmuir circulation. *Journal of Geophysical Research-Oceans*, 104, 26059-26068.
- [11] **Li, M.** and C. Garrett. 1998. The relationship between oil droplet size and upper ocean turbulence. *Marine Pollution Bulletin*, 36, 961-970.
- [10] **Li, M.** and C. Garrett. 1998. Large eddies in the surface mixed layer and their effects on mixing, dispersion and biological cycling. In *Physical Processes in Lakes and Oceans* (AGU series on Coastal and Estuarine Studies), edited by J. Imberger, 61-86.
- [9] **Li, M.** and Cummins, P.F. 1998. A note on hydraulic theory of internal bores. *Dynamics of Atmosphere and Oceans*, 28, 1-7.
- [8] Cummins, P.F. and **M. Li**. 1998. Comment on "Energetics of borelike internal waves" by F.S. Henyey and A. Hoering. *Journal of Geophysical Research-Oceans*, 103 (C2), 3339-3341.
- [7] Gargett, A.E., **M. Li** and R. Brown. 1998. Testing the concept of an optimal stability "window". In: *Biotic Impacts of Extratropical Climate Change in the Pacific*, Proceedings of 'Aha Huliko'a Hawaiian Winter Workshop, Edited by G. Holloway, P. Muller and D. Henderson. 133-140.
- [6] **Li, M.** and C. Garrett. 1997. Mixed-layer deepening due to Langmuir circulation. *Journal of Physical Oceanography*, 27, 121-132.
- [5] **Li, M.**, K. Zahariev and C. Garrett. 1995. Role of Langmuir circulation in the deepening of the ocean surface mixed layer. *Science*, 270, 1955-1957.
- [4] **Li, M.** and C. Garrett. 1995. Is Langmuir circulation driven by surface waves or surface cooling? *Journal of Physical Oceanography*, 25, 64-76.
- [3] Farmer, D.M. and **M. Li**. 1995. Patterns of bubble clouds organized by Langmuir circulation. *Journal of Physical Oceanography*, 25, 1426-1440.
- [2] Farmer, D.M. and **M. Li**. 1994. Oil dispersion in turbulence and coherent circulations. *Ocean Engineering*, 21(6), 575-586.
- [1] **Li, M.** and C. Garrett. 1993. Cell merging and jet/downwelling ratio in Langmuir circulation. *Journal of Marine Research*, 51, 737-769.

*Papers submitted:*

- [99] Schlenger, A., North, E., Li, Y., **M. Li**. 2020. Quantifying the spatial and temporal variability in the three-dimensional habitat of Chesapeake Bay living resources. *Estuaries and Coasts*, acceptable after revision.
- [100] Su, J. W-J. Cai, J.M. Testa, J. Brodeur, N. Hussian, B. Chen, M. Li, C. Shen, K.M. Scaboo, M. Dolan et al. 2020. Supply-controlled calcium carbonate dissolution decouples the seasonal dissolved oxygen and pH minima in Chesapeake Bay. *Limnology and Oceanography*, acceptable after revision.

*Conference proceedings:*

- [6] Boesch, D.F., L.P. Atkinson, W.C. Boicourt, J.D. Boon, D.R. Cahoon, R.A. Dalrymple, T. Ezer, B.P. Horton, Z.P. Johnson, R.E. Kopp, **M. Li**, R.H. Moss, A. Parris, C.K. Sommerfield. 2013. Updating Maryland's Sea-level Rise Projections. Special Report of the Scientific and Technical Working Group to the Maryland Climate Change Commission, 22 pp. University of Maryland Center for Environmental Science, Cambridge, MD.
- [5] Boesch, D.F., W.C. Boicourt, R.I. Cullather, T. Ezer, G.E. Galloway, Jr., Z.P. Johnson, K.H. Kilbourne, M.L. Kirwan, R.E. Kopp, S. Land, **M. Li**, W. Nardin, C.K. Sommerfield, W.V. Sweet. 2018. Sea-level Rise: Projections for Maryland 2018, 27 pp. University of Maryland Center for Environmental Science, Cambridge, MD.
- [4] Zeidan, E., K. Zahariev, **M. Li** and C. Garrett. 1997. The breakup of oil spills in the marine environment. *Proceedings of the 20<sup>th</sup> Arctic and Marine Oilspill Program Technical Seminar*, 187-201.
- [3] **Li, M.** 1996. Representing turbulent dispersion in oil spill models. *Proceedings of the 19<sup>th</sup> Arctic and Marine Oilspill Program Technical Seminar*, 185-198.
- [2] **Li, M.** and C. Garrett. 1996. Breakup of oil droplets in turbulent flows. *Proceedings of the 19<sup>th</sup> Arctic and Marine Oilspill Program Technical Seminar*, 671-684.
- [1] **Li, M.** 1995. Comparison between DNS and LES simulations of coherent structures in the ocean surface boundary layer. *Proc. Computational Fluid Dynamics*, 433-440.

\* stands for papers whose first author is my student or postdoc.

## **V. Editorships, Awards and Honors**

Associate Editor, Continental Shelf Research (2019-)  
Associate Editor, Frontier in Marine Science (2020-)  
Honorary Visiting Professor, Nanjing University of Information Science and Technology (2007, 2009)  
Honorable mention for R.E. FOERSTER Award for the Best Paper in the Department of Fisheries and Oceans of Canada (2000)  
Scholarship Award from K.C. Wong Education Foundation (1987-1990)

## VI. Grants and Fellowships

- [28] Estuary plumes as driver of inner continental shelf benthic community structure and function. 2021-2024. National Science Foundation. Woodland, Li and Testa (Co-PI). Total: \$946,572.
- [27] CoPe RCN (Research Coordination Network): Advancing Interdisciplinary Research to Build Resilient Communities and Infrastructure in the Nation's Estuaries and Bays. 2020-2021. National Science Foundation. Li, Stacey, Lubell, Orton and Reilly (PI). Total: \$500,000.
- [26] ECOHAB19: Life and death of *Karenia brevis* blooms in the Eastern Gulf of Mexico. 2019-2024. National Oceanic and Atmospheric Administration. Glibert and Li. \$1,115,280 (Co-PI). Total: \$5,000,000.
- [25] How will sea level rise impact hypoxia in the Chesapeake Bay? A multiple model intercomparison project. 2018-2019. Environmental Protection Agency (thru VIMS). Li. \$20,000 (PI).
- [24] Identifying Thresholds in Coupled Biogeochemical-Biological-Economic Systems Under Multiple Stressors. 2018-2021. National Atmospheric and Oceanic Administration. Testa, Cai, Li, Wainger and Waldbusser. \$1,035,411 (Co-PI).
- [23] Simulating the Performance of Optical Techniques for Estimating Population Indices in Reef Fish Surveys. 2018-2020. National Atmospheric and Oceanic Administration (through CINAR). Rose and Li, \$326,924 (Co-PI).
- [22] Generation mechanisms of nonlinear internal waves in coastal plain estuaries. 2018-2021. National Science Foundation. Li, \$341,057 (PI).
- [21] ECOHAB 2017: Development of a Mechanistic ROMS-RCA-HAB Model for Predicting *Prorocentrum minimum* and *Karlodinium veneficum* Blooms in Chesapeake Bay. 2017-2021. National Atmospheric and Oceanic Administration. Li and Glibert, \$598,888 (PI).
- [20] OA2015: Interactions between ocean acidification and eutrophication in estuaries: Modeling opportunities and limitations for shellfish restoration. National

Atmospheric and Oceanic Administration. 2015-2019. Testa, Li, Kemp, Cornwall, Cai and Waldbusser, \$1,492,710 (Co-PI).

- [19] Improving prediction and visualization of coastal inundation on the Eastern Shore of Maryland. Maryland Sea Grant. 2016-2019. Li and Wang, \$147,911 (PI). Plus two-year Maryland Sea Grant Fellowship for graduate student Fan Zhang.
- [18] WSC-Category 1 Collaborative Proposal: Coupled multi-scale economic, hydrologic and estuarine modeling to assess impacts of climate change on water quality management. 2014-2017. National Science Foundation. Easton, Bosch, Sample, Li, Najjar. \$599,828 (PI).
- [17] Activity 1: Application and Analysis of a Coupled Hydrodynamic-Biogeochemical Model (ROMS-RCA) in Shallow-Water Habitats of the Chesapeake Bay. Environmental Protection Agency, 2014-2016. Testa, Brady and Li. \$78,019 (Co-PI).
- [16] UMCES Comprehensive Proposal to Address the Impacts of Conowingo Particulates on the Chesapeake Bay. Exelon. 2014-2016. Cornwall, Palinkas, Sanford, Li, Testa and Kemp. \$1,214,477 (Co-PI).
- [15] Integrated rapid-response observations and ocean ensemble optimization to improve storm intensity forecasts in the Northeast U.S. 2013-2016. National Atmospheric and Oceanic Administration. Li and Boicourt, \$897,246 (PI).
- [14] Collaborative Research: The role of wind in estuarine dynamics. 2011-2015, National Science Foundation, Boicourt, Li and Sanford, \$1,440,217 (Co-PI).
- [13] A super-regional testbed to improve models of environmental processes on the U.S. Atlantic and Gulf of Mexico coasts. 2010-2011. National Oceanic and Atmospheric Administration, \$3,676,000 (Co-PI).
- [12] Collaborative Research: Estuarine response to climate forcing. 2010-2015, National Science Foundation, Li and Najjar, \$727,032 (PI).
- [11] Collaborative Research: Regulation of phytoplankton dynamics in Mid-Atlantic estuaries subject to climatic perturbations. 2008-2013, National Science Foundation, Harding, Li and Paerl, \$1,100,779 (Co-PI).
- [10] Collaborative Research: Impact of secondary circulations and mixing on estuarine exchange flows. 2008-2012, National Science Foundation, Chant, Li and Valle-Levinson, \$1,050,579 (PI).
- [9] Linking ASI to regional science and solutions for environmental management in Chesapeake Bay: A Subcontract to ESSIC, UMCP. 2008-2009. National Oceanic and Atmospheric Administration, Li, North and Cole, \$103,586 (PI).

- [8] CHRP07: Modeling hypoxia and ecological responses to climate and nutrients. 2007-2013, National Oceanic and Atmospheric Administration, Kemp, Li, North, Boynton, Secor, DiToro and Fennel, \$1,857,842 (Co-PI).
- [7] Chesapeake Inundation Prediction System (CIPS): A forecasting and visualization prototype for emergency management in coastal-bay-estuary systems. 2007-2010, National Oceanic Atmospheric Administration, Seller, Wang, Boicourt, Li, Titlow, Stamey, Smith, King and Koterba, \$1,500,000 (Co-PI).
- [6] Large Eddy Simulations of estuarine mixing. 2005-2009, National Science Foundation, Li, Piomelli and Geyer, \$618,679 (PI).
- [5] Development of an ecological forecasting model for Chesapeake Bay: A demonstration project for technology transfer to NOAA. 2006-2008. National Oceanic and Atmospheric Administration, Li and Harding, \$68,066 (PI).
- [4] Oceanic LES simulations to interpret and synthesize turbulence measurements obtained during CBLAST-Low. 2005-2007, Office of Naval Research, Li, \$55,000 (PI).
- [3] Parameterizing the effects of upper-ocean large eddies on air-sea interaction. 2002-2007, Office of Naval Research, Li and Garrett, \$212,000 (PI).
- [2] A community model for the Chesapeake Bay. 2002-2005, National Oceanic and Atmospheric Administration/CICEET, Li, Hood and Boicourt, \$196,000 (PI).
- [1] Modeling dispersal of oyster larvae in Chesapeake Bay. 2004-2006, Maryland Department of Natural Resources, North, Hood, Li and Gross, \$99, 850 (Co-PI).

## VII. Teaching Experience

2002- Member, USM (University of Maryland) Inter-Institutional Graduate Faculty  
 2004 - 2016 Co-Chair, Oceanography AOS (Area of Speciality).

### A. *University System of Maryland Courses Taught*

Physics of Marine and Estuarine Environments  
 Climate Impacts on Estuaries and Ecosystems  
 Transport processes and plankton distributions

### B. *Graduate Students Supervised as Major Advisor*

Yuren Chen, Ph.D, Physical Oceanography, MEES, coastal ocean dynamics and red tide on West Florida shelf, enrolled in fall of 2020.

Renjian Li, Ph.D., Physical Oceanography, MEES, Internal waves, enrolled in fall of 2018.

Yijun Guo, Ph.D., Physical Oceanography, MEES, Ocean acidification, enrolled in fall of 2018.

Wenfei Ni, Ph.D., Physical Oceanography, MEES, Estuarine hypoxia, defended Ph.D thesis in December 2019 (Now Knauss Fellow at NOAA).

Yang Song, Ph.D., Joint US-China graduate program, Mixotrophic modeling of *Karlodinium veneficum*, defended thesis in summer 2020 (co-advise with Pat Glibert).

Fan Zhang, Ph.D., Physical Oceanography, MEES, Oceanic response to hurricanes and storm surges, defended thesis in spring of 2018 (Now Associate Professor at East China Normal University).

Wei Liu, Ph.D., Physical Oceanography, MEES, Dye dispersion in the James River estuary, defended thesis in Spring 2017 (Now Postdoctoral Researcher at University of Maryland).

Yun Li, Ph.D, Physical Oceanography, MEES, Impact of climate change and extreme weather events on hypoxia in Chesapeake Bay, defended in Summer 2012 (Now Assistant Professor at University of Delaware).

Peng Jia, M.Sc, Physical Oceanography, MEES, Circulation dynamics and salt balance in a lagoonal estuary, Defended in Summer 2011 (now Software Engineer at IBM, China).

Zengrui Rong, Ph.D, Physical Oceanography, Joint US-China graduate program, Dynamics of Changjiang River plume, Defended in Spring 2009 (now Associate Professor at Ocean University of China).

Lisa Li, Ph.D, Physical Oceanography, Joint US-China graduate program, Large Eddy Simulations of upper ocean turbulence, Defended in Spring 2010 (now Associate Professor at Zhejiang University).

Dakui Wang, Ph.D, Physical Oceanography, Joint US-China graduate program, Biophysical interactions in South China Sea, Defended in Fall 2011 (now Research Scientist at National Marine Environmental Forecasting Center in China).

Yahao Liu, Ph.D, Physical Oceanography, Joint US-China graduate program, Biophysical interactions in East China Sea, Defended in Spring 2011 (now Assistant Researcher at Institute of Oceanology, Chinese Academy of Sciences).

Qingyun Yu, Ph.D, Physical Oceanography, Joint US-China graduate program, Impact of climate variability on plankton productivity in Chesapeake Bay, Defended in Summer 2012 (now Research Engineer at North Sea Branch, China Oceanic Administration).

*C. Graduate Student Committee Memberships*

Michael Zickel	M.Sc	MEES	UMCP
David Miller	Ph.D.	MEES	UMCP
Monica Salerno	M.Sc	MEES	UMCP
Shih-Nan Chen	Ph.D.	MEES	UMCP
Ed Davis	M.Sc.	MEES	UMCP
Yonghui Gao	Ph.D	MEES	UMCP
Ji Li	Ph.D	MEES	UMCP
Jeremy Testa	Ph.D	MEES	UMCP
Alex Fisher	Ph.D	MEES	UMCP
Justin Schulte	Ph.D	Meteorology	Penn State
Andrew Ross	Ph.D	Meteorology	Penn State
Michelle Lin	Ph.D	MEES	UMCP
Emily Russ	Ph.D	MEES	UMCP
Samantha Gleich	Ph.D	MEES	UMCP/UMCES
Nicole Basenback	M.Sc	MEES	UMCP/UMCES
Caroline Wienicki	M.Sc	MEES	UMCP/UMCES
Sophia Ahn	Ph.D	MEES	UMCP/UMCES
Katie Lankowicz	Ph.D	MEES	UMCP/UMCES

*D. Postdoctoral Fellows Supervised*

Fan Zhang, modeling of harmful algal blooms, 2018-2019 (Now Associate Professor at East China Normal University).

Xiaohui Xie, estuarine response to winds, sediment modeling and effects of physical processes on ocean acidification, 2013-2018 (Now Senior Scientist at the Second Institute of Oceanology, China).

Serena Lee, inundation modelling, 2013-2015 (Now Research Fellow at Griffith University).

Younjoo Lee, hypoxia research, 2009-2013 (Now Research Associate at Naval Postgraduate School).

Peng Cheng, estuarine modeling, 2011-2013 (Now Professor at Xiamen University).

Liejun Zhong, Numerical modelling of Chesapeake Bay (Now Research Scientist at CSIRO Institute of Oceanography, Australia.)

*E. Undergraduate Students Supervised*

Samantha Roth, Leigh University, 2018.

Samuel Barnes, Salisbury University, 2018.



Cale Bowen, Salisbury University, 2013.

Wan Ren, Salisbury University, 2013.

Jeff Dandoy, John Hopkins University, 2011.

Andrea Ablner, University of Maryland, Baltimore County, 2006.

Sergejs Melders, Salisbury University, 2005.

Mitch Buck, John Hopkins University, 2004.

## **VIII. Service**

### *A. Reviews*

I review 15-30 papers and proposals per year for various journals and funding agencies including

*National Science Foundation*

*National Academy of Sciences*

*National Oceanic and Atmospheric Administration*

*Department of Energy*

*Deep-Sea Research*

*Journal of Marine Research*

*Geophysical Research Letters*

*Journal of Physical Oceanography*

*Journal of Fluid Mechanics*

*Journal of Geophysical Research*

*Limnology and Oceanography*

*Estuarine, Coastal and Shelf Research*

*Marine Ecology Progress Series*

*Ocean Modelling*

*Physics of Fluids*

*Continental Shelf Research*

*Journal of Hydrology*

*Journal of Marine Systems*

*Estuaries and Coasts*

### *B. UMCES and Horn Point Laboratory*

Tenure Review Committee (2019)

Emeritus Professor Review Committee (2019)

Panelist on Coastal Resiliency, UMCES Environmental Summit (2018).

Chair of Physical Oceanography Faculty Search Committee (2016-2018)

HPL IT Committee (2018-2019)

UMCES MSCHE Self-Study 2020 – Working Group 6 (2019)  
HPL Director Review Committee (2016)  
Emeritus Professors Review Committee (2016)  
Graduate Council (2013-2014)  
UMCES Accreditation Readiness Working Group Member and Team Leader (2013)  
HPL Education Committee Chair (2012-2014)  
Faculty Senate (2003-2007)  
HPL Computer Service Committee Chair (2008-2009)

C. *University System of Maryland*

MEES Curriculum Committee (2013-2015)  
Co-Chair, MEES Oceanography AOS (2004-2016)  
Admission Committee, MEES Oceanography AOS (2003-2004)  
Meeting with MEES Program Review Committee (2008)

D. *Public Service*

- Middle Branch Technical Advisory Committee, City of Baltimore (2020-).
- Invited participant at the Lower Eastern Shore Climate Adaptation Network meeting (2019).
- Interviews on sea level rise, storm surge, hypoxia and red tides with a number of newspapers, journals and TVs (2019).
- Featured scientist in the article on “defending the shoreline” by Stormwater, the journal for surface water quality professionals (2019).
- Featured researcher in the Maryland Sea Grant film on “A Diminishing Smithville” (2018).
- Panelist on NOAA National Sea Grant Office four-year review of the Maryland Sea Grant program (2018).
- Invited speaker at the workshop of Maryland Chapter of the American Planning Association (2018).
- Developed a website on coastal inundation projections for Chesapeake Bay, Eastern Shore of Maryland and City of Baltimore (2018):  
<http://geronimo.hpl.umces.edu/mingli/>.
- Presented an outreach seminar on sea level rise, storm surge and coastal inundation at Chesapeake Biology Lab (2018).
- Advised Chesapeake Bay Foundation on sea level rise and infrastructure decisions (2017).
- Featured researcher in the film on “High Tide in Dorchester” by Tom Horton, Sandy Cannon-Brown and Dave Harp (2017).
- Featured researcher at the Washington Post, Claims Journal, the Republic (Indiana), the Cumberland Times-News, Daily Journal (IN), CBS Baltimore, My Eastern Shore, the Star Democrat, WBOC, Daily Times What is Up Magazine (2013-2020).
- Featured researcher in Baltimore Sun (2011) and Gazette Journal (2012).

- Appearance in Documentary on “Mega Disasters – GLACIER MELTDOWN” produced by History Channel (2007).
- Board member, Chinese-American Oceanic and Atmospheric Association (2007-2009).
- Invited lectures for the NSF COSEE program for teachers (2003, 2005).

*E. Local/National /International*

- IAHR panel on Climate Change and Coastal Resilience (2020).
- Department of Energy – proposal review panel (2020).
- National Science Foundation – proposal review panel (2019).
- CERF Session Convenor on “Impact of weather and extreme events: observations, analysis, and modeling” – Co-convenor (2019).
- Invited participant and speaker at NASA workshop on Chesapeake Bay water quality modelling workshop (2019).
- Invited participant and speaker at the workshop on “use of dredged material to protect low-lying areas of the Chesapeake Bay” sponsored by Maryland Department of Transport and Maryland Port Administration (2019).
- American Geophysical Union Fall Meeting, Session Convenor on “Biogeochemical cycling in estuaries, coastal waters, and their watersheds: natural variability, response to land use and climate change, and management implications” (2018).
- Expert group member for updating sea level projections for the state of Maryland (2018).
- Invited participant at the STAC (Scientific and Technical Advisory Committee) meeting of Chesapeake Bay Program on climate change effects (2018).
- Invited participant and speaker at NSF workshop on the future in estuarine and coastal modelling (2018).
- National Academy of Sciences – proposal review panel (2018).
- CERF Session Convenor on “Impact of extreme weather on estuaries: innovative methods and modeling” – Co-convenor (2017).
- Invited participant on coastal resiliency symposium on “Universities and Coastal Resilience: A Strategic Discussion” at Old Dominion University (2017).
- Participated in group discussions on water quality and coastal conservation with Shenzhen delegation (2017).
- Expert group member for updating sea level projections for Maryland (2013).
- Annual MABPOM Meeting – Co-convenor (2011).
- National Atmospheric and Oceanic Administration – proposal evaluation panel (2010).
- Office of Naval Research – Invited participant and speaker at ONR workshop to draft a white paper for a new Departmental Research Initiative (DRI) on the effects of surface waves on air-sea interaction, Scripps Institution of Oceanography (2010).

- Ocean Science Meeting, Session Convenor on “Impacts of eutrophication and climate change on marginal seas”, Portland, Oregon (2010).
- American Geophysical Union Fall Meeting, Session Convenor on “Impact of climate variability and change on estuaries and coastal ocean”, San Francisco (2008).
- American Geophysical Union Fall Meeting, Session Convenor on “Tidal processes in coastal oceans and estuaries”, San Francisco (2008).
- International Symposium on “From millimetres to megametres: the interacting scales of ocean dynamics”, Victoria, B.C., Canada, organizing committee (2008).
- Ocean Science Meeting, Session Convenor on “Dynamics of estuarine circulations and river plumes: from process studies to predictive models”, Orlando, Florida (2008).
- Served on the National Science Foundation (NSF) proposal review panel in the Division of Ocean Sciences (2003, 2007).
- Honorary Visiting Professor at College of Atmospheric Science, Nanjing University of Information Science and Technology and advised on the emerging research program in coastal and estuarine research (2007, 2009).
- Advised newly established Yantai Institute of Coastal Zone Research for Sustainable Development, Chinese Academy of Science on interdisciplinary research across land-sea boundary, Yantai, China (2007).
- Advised Institute of Oceanology, Chinese Academy of Science on interdisciplinary research in air-sea interaction, Qingdao, China (2007).
- Invited participant in EPA STAC workshop, Annapolis, MD (2006).
- Invited participant in U.S. Army Corps of Engineer’s workshop on storm surge and floodplain models, MD (2006).
- Invited participant in Maryland Sea Grant Research Planning workshop, College Park, MD (2005)
- Invited participant in EPA workshop on Ecological Forecasting, Annapolis, MD (2005).
- Invited participant at ONR Northeast Site Review workshop, New Brunswick, New Jersey (2005).

## **IX. Selected Invited Talks and Contributed Presentations**

- Li, M. 2020. Opportunities and challenges in building coastal resiliency in estuaries and bays under a changing climate. Invited talk at IAHR (International Association for Hydro-Environment Engineering and Research) 85<sup>th</sup> Anniversary Summit.
- Li, M. 2020. Fighting surging seas in a changing climate: defending coastlines at all costs or strategic retreat to high ground? Talk at the virtual seminar series on Assessing Coastal Risks and Enhancing Resilience, HPL.

- Li, M. 2020. Impacts of climate change on coastal inundation, hypoxia, acidification and harmful algal blooms in Chesapeake Bay. Invited seminar at IMET.
- Li, M. 2020. Impacts of climate change and coastline management on inundation in Baltimore and Chesapeake Bay. Invited talk at Baltimore Urban Waters Flood Workshop: Bridging the gaps between science and regulation.
- Li, M., Y. Guo, W-J Cai, J. Testa, C. Shen, W. Ni and G.G. Waldbusser. 2020. Climate downscaling projections of estuarine acidification and hypoxia in Chesapeake Bay in the 21s century. Oral presentation at 2020 Ocean Science Meeting, San Diego.
- Li, R. and M. Li. 2020. Modeling the generation of internal waves by lateral circulation in an idealized estuary with channel-shoal bathymetry. Poster presentation at 2020 Ocean Science Meeting, San Diego.
- Ni, W., M. Li and J. Testa. 2020. Discerning effects of warming, sea level rise and nutrient reduction on long-term hypoxia trend in Chesapeake Bay. Poster presentation at 2020 Ocean Science Meeting, San Diego.
- St-Laurent, P., M.A.M. Friedrichs, M. Li and W. Ni. 2020. Effects of sea level rise on the seasonal hypoxia of Chesapeake Bay. Oral presentation at 2020 Ocean Science Meeting, San Diego.
- Glibert, P.M., M. Li, F. Zhang, Y. Song and M. Lin. 2020. Modeling mixotrophic *Karlodinium veneficum* in Chesapeake Bay. Poster presentation at 2020 Ocean Science Meeting, San Diego.
- Zhang, F., M. Li, P.M. Glibert, S-H. Ahn. 2020. A mechanistic model to predict seasonal timing and spatial distribution of *Prorocentrum* minimum blooms in Chesapeake Bay. Poster presentation at 2020 Ocean Science Meeting, San Diego.
- Gimenez Calvo, I., G.G. Waldbusser, J.M. Testa, M. Li, W-J. Cai, W.M. Kemp, J. Cornwell. 2020. Alkalinity fluxes on a Chesapeake Bay restored oyster reef: Results from intact core incubations under normal and moderately acidified experimental conditions. Poster presentation at 2020 Ocean Science Meeting, San Diego.
- Ross, A., C.A. Stock, K.W. Dixon, M.A.M. Friedrichs, R.R. Hood, M. Li. L. Pegion, V.S. Saba, G.A. Vecchi. 2020. Estuarine forecasts at weather to subseasonal scales. Poster presentation at 2020 Ocean Science Meeting, San Diego.
- Li, M. 2019. Coastline management in low-lying areas affect tidal range and storm surge throughout Chesapeake Bay. Invited talk at the workshop on Use of dredged material to protect low-lying areas of the Chesapeake Bay.

- Li, M. 2019. Predicting seasonal timing and spatial distribution of *Prorocentrum minimum* and *Karlodinium veneficum* blooms in Chesapeake Bay. Invited talk at NASA Chesapeake Bay water quality modelling workshop.
- Zhao, J. and M. Li. 2019. The atmospheric and oceanic patterns linked to the recent sea level changes along Mid-Atlantic Bight and northeast coast. Poster presentation at CLIVAR workshop on sea level hotspots from Florida to Maine: drivers, impacts, and adaptation.
- Glibert, P.M., M. Li, F. Zhang, W. Ni and C-H Lin. 2019. Climate-induced interannual variability and long-term change in several common HABs of Chesapeake Bay. Talk at 2019 CERF biennial conference.
- Testa, J.M., C. Shen, W.J. Cai, M. Li and M. Kemp. 2019. Ecosystem metabolism and carbon balance in Chesapeake Bay: a 20-year modelling study. Talk at 2019 CERF biennial conference.
- Ross, A., C. Stock, K. Dixon, M. Friedrichs, R. Hood, M. Li, K. Pegion, G. Vecchi, V. Saba. 2019. Drivers and predictability of subseasonal variations of dissolved oxygen in Chesapeake Bay. Talk at 2019 CERF biennial conference.
- St. Laurent, P., M. Friedrichs, M. Li, W. Ni. 2019. Impacts of sea level rise on Chesapeake Bay and its seasonal hypoxia. Talk at 2019 CERF biennial conference.
- Glibert, P.M., M. Li, F. Zhang, W. Ni and C-H Lin. 2019. Climate-induced interannual variability and long-term change in several common HABs of Chesapeake Bay. Talk at the 10<sup>th</sup> US Symposium on harmful algae.
- Rose, K.A., M. Li, J. Zhao, E. Curchitser and J. Fiechter. 2019. Predicting climate change effects on marine and coastal fish using coupled bio-physical models: challenges and opportunities. Invited talk at 2019 ASLO meeting.
- Li, M., F. Zhang, S. Barnes and X. Wang. 2018. Impacts of sea level rise and ocean warming on storm surge and coastal inundation in the mid and late 21<sup>st</sup> century. Presentation at 2018 American Geophysical Union Fall Meeting.
- Ni, W. and M. Li. 2018. Modeling study of the physical and biogeochemical controls on long-term change of Chesapeake Bay hypoxia during 1985-2016. Presentation at 2018 American Geophysical Union Fall Meeting.
- Li, M. 2018. Recent advances in interdisciplinary coastal research. Invited seminar at Hohai University.
- Li, M. 2018. Recent advances in interdisciplinary coastal research. Invited seminar at Nanjing Hydraulics Research Institute.

- Li, M. 2018. Climate downscaling projections for estuarine hypoxia and acidification using coupled hydrodynamic-biogeochemical models. Invited talk at NSF workshop on the future of coastal and estuarine modeling.
- Li, M., X. Xie, C. Shen, B. Chen, W. Ni, W-J Cai, and J. Testa. 2018. Physically driven temporal and spatial variabilities in carbonate chemistry dynamics. 2018 Chesapeake Research and Modeling Symposium.
- Ni, W., M. Li, A. Ross, R. Najjar, M. Wagena, and Z. Easton. 2018. Climate downscaling projections of Chesapeake Bay hypoxia in the 21st century. 2018 Chesapeake Research and Modeling Symposium.
- Li, M. and X. Xie. 2018. Generation of internal solitary waves in a coastal plain estuary. 2018 Ocean Science Meeting.
- Zhang, F. and M. Li. 2018. Surface cooling on the continental shelf induced by near-inertial currents during Hurricane Arthur (2014). 2018 Ocean Science Meeting.
- Ross, A., R. Najjar, M. Li, S. Lee, F. Zhang and W. Liu. 2018. Evidence of changing tides in response to sea-level rise in Chesapeake and Delaware Bays. 2018 Ocean Science Meeting.
- Palinkas, C., J. Cornwall, L. Sanford, M. Li and J. Testa. 2018. Processes and management of altered estuaries in the era of Anthropocene. 2018 Ocean Science Meeting.
- Ni, W., M. Li, A. Ross and R. Najjar. 2018. Projections of Chesapeake Bay hypoxia under regional climate change in the twenty-first century. 2018 Ocean Science Meeting.
- Glibert, P.M., M. Li, M.C. Lin and W. Ni. 2017. Development of a Mechanistic ROMS-RCA-HAB Model for Predicting *Prorocentrum minimum* and *Karlodinium veneficum* Blooms in Chesapeake Bay. 9<sup>th</sup> U.S. symposium on harmful algal blooms.
- Li, M., F. Zhang and X. Wang. 2017. Development of a regional atmosphere-ocean modeling system for predicting and visualizing storm surge and coastal inundation in a changing climate. 24<sup>th</sup> Biennial Conference of Coastal and Estuarine Research Foundation.
- Ni, W., Li, M., A. Ross and R. Najjar. 2017. Downscaling climate projections for Chesapeake Bay hypoxia in the mid-21<sup>st</sup> century. 24<sup>th</sup> Biennial Conference of Coastal and Estuarine Research Foundation.
- Boesch, D., Z. Johnson and M. Li. 2017. Scientific Guidance for Rehabilitation of the Chesapeake Bay Ecosystem under the Changing Climate. AGU Fall Meeting.

- Li, M., W. Liu, R. Chant and A. Valle-Levinson. 2016. Flood-ebb and spring-neap variations of lateral circulation in the James River estuary. 2016 Ocean Science Meeting.
- Lee, S.B., M. Li and F. Zhang. 2016. The effect of sea level rise on tidal dynamics in Chesapeake and Delaware Bays. 2016 Ocean Science Meeting.
- Zhang, F., T. Miles, M. Li and X. Xie. 2016 Near inertial waves generated by Hurricane Arthur on the Mid-Atlantic-Bight shelf. 2016 Ocean Science Meeting.
- Xie, X., T. Miles, M. Li and X. Xie. 2016 Near inertial waves generated by Hurricane Arthur on the Mid-Atlantic-Bight shelf. 2016 Ocean Science Meeting.
- Huguenard, K., A. Valle-Levinson, M. Li, R. Chant, A. Souza. 2015. Influence of tidal mixing asymmetries on residual exchange flow in the James River estuary. Presentation at CERF Biennial Conference, Portland, Oregon.
- Liu, W., M. Li and A. Ross. 2015. Study of climatic impacts on Chesapeake Bay and Delaware Bay by the approach of numerical models and statistical methods. Presentation at the Gordon Research Conference on Coastal Ocean Modeling, Biddeford, ME.
- Zhang, F., M. Li, S. Lee and Andrew Ross. 2015. Numerical simulation of storm surge generated by Hurricane Arthur with an air-sea coupled model. American Meteorological Society Annual Meeting, 13<sup>th</sup> Symposium on the Coastal Environment, Phoenix, AZ.
- Xie, X., M., Li, and W. C. Boicourt. 2014. Observations and simulations of wind-driven lateral circulation in Chesapeake Bay. Presentation at American Geophysical Union Fall Meeting, San Francisco, California.
- Li, M., J. Testa, Y. Lee, Y. Li and W.M. Kemp. 2014. Impacts of climate variability and extreme weather events on hypoxia in Chesapeake Bay. Talk at Symposium on Low Oxygen Environments in Marine, Estuarine and Fresh Waters, Liege, Belgium.
- Testa, J., Y. Lee, M. Li and W.M. Kemp. 2014. Quantifying biological and physical controls on dissolved oxygen in Chesapeake Bay using a coupled hydrodynamic-biogeochemical model. Talk at Symposium on Low Oxygen Environments in Marine, Estuarine and Fresh Waters, Liege, Belgium.
- Li, M. 2014. Impacts of climate change and extreme weather events on Mid-Atlantic Estuaries. Invited seminar at Department of Atmospheric and Oceanic Science, University of Maryland, College Park.



- Cheng, P., M. Li, A. Ross and R. Najjar. 2014. Modeling Chesapeake and Delaware Bays by downscaling from Mid-Atlantic Ocean into estuaries. Ocean Science Meeting, Honolulu, Hawaii.
- Ross, A., M. Li, R. Najjar and M. Herrmann. 2014. High-resolution simulations of Chesapeake and Delaware Bays under past and future climates. Ocean Science Meeting, Honolulu, Hawaii.
- Li, M. 2014. Impacts of extreme weather events on plankton productivity and hypoxia in Chesapeake Bay. Ocean Science Meeting, Honolulu, Hawaii.
- Li, M. 2013. Impacts of climate change and extreme weather events on coastal oceans. Invited seminar at Department of Atmospheric Science, University of California, Los Angeles.
- Li, M. 2013. Issues in inundation modeling. Invited talk at CINAR workshop. Woods Hole Oceanographic Institution.
- Cheng, P., M. Li, and R. Chant. 2012. The role of lateral advection in residual dynamics of tidal estuaries. 2012 PECS (Physics of Estuaries and Coastal Seas) Symposium, New York City, New York.
- Li, M., Y. Li, P. Cheng, W. Liu, R. Chant, and A. Valle-Levinson. 2012. Vorticity dynamics of secondary circulations in idealized and realistic estuaries. 2012 PECS (Physics of Estuaries and Coastal Seas) Symposium, New York City, New York.
- Li, Y. and M. Li. 2012. Dynamics of wind-induced lateral circulation and its effects on estuarine exchange flow and stratification. Presentation at 2012 Ocean Science Meeting, Salt Lake City, Utah.
- Cheng, P., M. Li and R. Najjar. 2012. Estuarine response to sea-level rise: a numerical study of Chesapeake and Delaware Bays. Presentation at 2012 Ocean Science Meeting, Salt Lake City, Utah.
- Li, M. 2011. Dynamics of Changjiang River plume in the East China and Yellow Seas. Talk at 2011 MABPOM meeting, Cambridge, Maryland.
- Li, M., Y. Li and R. Najjar. 2010. Response of Chesapeake Bay to climatic forcing. Invited Talk at Ocean Science Meeting, Portland, Oregon.
- Valle-Levinson, A., R. Chant and M. Li. 2010. Relative role of Coriolis and advective accelerations on the dynamics of a coastal plain estuary. Invited talk at Ocean Science Meeting, Portland, Oregon.
- Li, Y. and M. Li. 2010. Modeling hypoxia response to river flow and wind forcing in Chesapeake Bay. Talk at Ocean Science Meeting, Portland, Oregon.

- Peng, J. and M. Li. 2010. Effects of wind on a shallow lagoonal estuary. Talk at Ocean Science Meeting, Portland, Oregon.
- Wang, D. and M. Li. 2010. Dynamics of seasonal circulation pattern off Vietnam coast in South China Sea. Talk at Ocean Science Meeting, Portland, Oregon.
- Li, M. 2009. Impact of climate change and extreme weather events on estuaries and coastal oceans - The Chesapeake Bay example. Invited Talk at Second NSF-NSFC US-China Exchange to Explore Research Cooperation on Climate Chang, Baltimore.
- Li, M. 2009. Impact of climate change and extreme weather events on estuaries and coastal oceans. Invited seminar at Institute of Oceanology, Chinese Academy of Science.
- Li, M. 2009. Modeling biological-physical interactions in coastal oceans. Invited seminar at Ocean University of China.
- Harding, L.W. Jr., M. Li and H. Paerl. 2008. Climatic perturbations of phytoplankton dynamics in Mid-Atlantic estuaries. Invited Talk at American Geophysical Union Fall Meeting, San Francisco.
- Li, M., Y. Li and R. Najjar. 2008. How does sea-level rise affect stratification and circulation in Chesapeake Bay? Talk at American Geophysical Union Fall Meeting, San Francisco.
- Li, M., L. Zhong, Senthil Radhakrishnan, Ugo Piomelli and Rocky Geyer. 2008. Large Eddy Simulations of estuarine mixing processes. Talk at Ocean Science Meeting, Orlando, Florida.
- Rong, Z., M. Li and Y. Liu. 2008. How Does Changjiang River Plume Spread in East China and Yellow Sea? Presentation at Ocean Science Meeting, Orlando, Florida.
- Li, M. 2008. How will climate change and extreme weather events affect Chesapeake Bay? Invited talk at Chesapeake Bay Modeling Symposium, Annapolis, Maryland.
- Piomelli, U., S. Radhakrishnan, L. Zhong and M. Li . 2007. Wall-layer models for large-eddy simulations of high-Reynolds number non-equilibrium flows. Invited talk at the 11<sup>th</sup> European Turbulence Conference, Porto, Portugal.
- Li, M. 2007. How does turbulence affect circulation and biological production in an estuary? Invited seminar at Beijing University.
- Li, M. 2007. How do hurricanes affect coastal oceans? Invited seminar at First Institute of Oceanography, China.

- Li, M. 2007. Development of coupled hydrodynamic-biogeochemical models to investigate water quality in coastal oceans. Invited seminar at Yantai Institute of Coastal Zone Research for Sustainable Development, Chinese Academy of Science.
- Li, M. 2007. Coupled hydrodynamic-biogeochemical models. Invited seminar at Nanjing University of Information Science and Technology, Nanjing, China.
- Li, M. 2007. How does turbulent mixing affect circulation in Chesapeake Bay? Invited seminar at Johns Hopkins University.
- Li, M. 2007. Large Eddy Simulations of turbulent oceanic flows. Invited seminar at Fluid Dynamics Reviews Seminars of the Burgers Program, University of Maryland at College Park.
- Li, M. 2006. How do surface waves affect dynamics of the ocean surface mixed layer? Invited seminar at University of Delaware, Newark, Delaware.
- Li, M. 2006. Hurricane-induced storm surges, destratification and restratification in Chesapeake Bay. Invited seminar at University of Delaware, Newark, Delaware.
- Li, M. 2006. Which is more important in driving/mixing Chesapeake Bay? Tide or wind? Invited seminar at Woods Hole Oceanographic Institution.
- Li, M. 2005. Development of a coupled hydrodynamic-biogeochemical model for Chesapeake Bay. Invited seminar at University of Maryland, College Park, Maryland.
- Li, M. 2005. Modeling turbulent large eddies in the upper ocean. Invited talk at ONR Northeast Site Review workshop, New Brunswick, New Jersey.
- Li, M. 2005. Development of a new coupled hydrodynamic-biogeochemical model for ecological forecasting in Chesapeake Bay. Invited talk at EPA workshop on Ecological forecasting for Chesapeake Bay, Annapolis, Maryland.

## **X. Professional memberships**

American Geophysical Union  
American Meteorological Society  
Oceanographic Society