

Yun Li

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Education

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

Research Interests

Estuarine circulation and secondary circulation
Stratification dynamics
Biophysical interactions
Dissolved oxygen dynamics
Phytoplankton and sea ice phenology
3D coupled hydrodynamic-biogeochemical models

Professional Experience

2016- Assistant Research Professor, University of South Florida
2014-2016 Postdoctoral Investigator, Woods Hole Oceanographic Institution
2012-2014 Research Biologist, NOAA NMFS Northeast Fisheries Science Center
Guest Investigator, Woods Hole Oceanographic Institution
2006-2012 Graduate Research Assistant, U. of Maryland Center for Environmental Science

Research Funding (as of 01/24/2017)

2017-2020 National Science Foundation, PLR Total: \$949,762 Li: \$191,044
Collaborative Research: Polynyas in Coastal Antarctica (PICA): Linking Physical Dynamics to Biological Variability. Collaborators: Weifeng Zhang (WHOI), Rubao Ji (WHOI), Ted Maksym (WHOI) and Stephanie Jenouvrier (WHOI).

2018-2019 Gulf of Mexico Research Initiative Total: \$709,456 Li: \$136,773
Effects of Mesoscale Eddies on Three-Dimensional Oil Dispersion: Data Integration, Interpretation and Implications for Oil Spill Models. Collaborators: Xinfeng Liang (USF), Robert Weisberg (USF), Yonggang Liu (USF).

Pending National Aeronautics and Space Administration, NIP Li: \$200,965
Combining remote sensing and ocean state estimate to determine the dynamic connection between the changing sea ice, phytoplankton and stratification

Field Experience

1. 03/2012 R/V Sharp, meteorological buoy deployment, along and cross-channel CTD surveys in Chesapeake Bay, USA.

2. 05/2010 R/V Caleta and R/V Neritic, dye injection and patch measurement, along and cross-channel ADCP and CTD surveys in James River, VA.
3. 08/2009 R/V Centennial and R/V Auklet, survey in Saratoga Passage and Skagit Bay, program HOBO meteorological device, deploy/recover ADCP, mooring, and meteorological buoys, conduct CTD casts, record sonar images.

Manuscripts in preparation

1. **Li, Y.**, R. Ji, P. Fratantoni, C. Chen, Y. Sun, and J. Hare, Changing rhythm of stratification on the Northwest Atlantic shelf: interannual variability and its biological implications, to be submitted to *J. Geophys. Res.*
2. **Li, Y.**, R. Ji, S. Jenouvrier, M. Jin, and J. Stroeve, Timing of ice retreat and phytoplankton bloom in Antarctic Seasonal Ice Zone, in preparation.
3. **Li, Y.**, et al., Impacts of Physical Circulation on the Pre-seeding of *Karenia brevis* Bloom on the West Florida Shelf, in preparation.
4. RARGOM working group on phenology (**co-author Li**), It's about time: A synthesis of changing phenology in the Gulf of Maine Ecosystem, submitted to *Fisheries Oceanography*.

Peer-Reviewed Publications

1. Che-Castaldo, C., S. Jenouvrier, C. Youngflesh, K. Shoemaker, G. Humphries, L. Landrum, M. Holland, **Y. Li**, R. Ji, and H. Lynch (2017), Pan-Antarctic analysis reveals the importance of stochastic forcing for Adélie penguins: How moisy is too moisy for adaptive management? *Nature Communications*. 8, doi:10.1038/s41467-017-00890-0.
2. Youngflesh, C., S. Jenouvrier, **Y. Li**, R. Ji, D. G. Ainley, G. Ballard, C. Barbraud, K. Delord, K. M. Dugger, L. M. Emmerson, W. R. Fraser, J. T. Hinke, P. O'B. Lyver, S. Olmastroni, S. G. Trivelpiece, W. Z. Trivelpiece, H. Lynch (2017), Circumpolar analysis of the Adélie penguin reveals the importance of environmental variability in phenological mismatch, *Ecology*. doi: 10.1002/ecy.1749.
3. Testa, J. M., **Y. Li**, Y. J. Lee, M. Li, D. C. Brady, D. M. Di Toro, and W. M. Kemp, (2017), Chapter 6: Modeling physical and biogeochemical controls on dissolved oxygen in Chesapeake Bay: Lessons learned from simple and complex approaches, 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. doi: 10.1007/978-3-319-54571-4_5
4. **Li, Y.**, R. Ji, S. Jenouvrier, M. Jin, and J. Stroeve, (2016), Synchronicity between ice retreat and phytoplankton bloom in circum-Antarctic polynyas, *Geophys. Res. Lett.*, 43, 2086–2093, doi:10.1002/2016GL067937.
5. Li, M., Y. J. Lee, J. M. Testa, **Y. Li**, W. M. Kemp, and D. M. Di Toro, (2016), What Drives Interannual Variability of Estuarine Hypoxia: Climate Forcing Versus Nutrient Loading? *Geophys. Res. Lett.*, 43, 2127–2134, doi:10.1002/2015GL067334.
6. **Li, Y.**, P. S. Fratantoni, C. Chen, J. A. Hare, Y. Sun, and R. C. Beardsley, R. Ji, (2015), Spatio-temporal patterns of stratification on the Northwest Atlantic shelf, *Prog. Oceanogr.*, 134, 127-137, doi:10.1016/j.pocean.2015.01.003.
7. **Li, Y.**, M. Li, and M. W. Kemp (2015), A budget analysis bottom-water dissolved oxygen in Chesapeake Bay, *Estuar. Coast.*, doi:10.1007/s12237-014-9928-9.

8. **Li, Y.**, R. Ji, P. S. Fratantoni, C. Chen, J. A. Hare, C. S. Davis, and R. C. Beardsley (2014), Wind-induced interannual variability of sea level slope, along-shelf flow, and surface salinity on the Northwest Atlantic shelf, *J. Geophys. Res. Oceans*, 119, 2462–2479, doi:10.1002/2013JC009385.
9. Testa, J. M., **Y. Li**, Y. J. Lee, M. Li, D. C. Brady, D. M. Di Toro, W. M. Kemp, J. J. Fitzpatrick (2014), Quantifying the Effects of Nutrient Loading on Dissolved O₂ Cycling and Hypoxia in Chesapeake Bay using a Coupled Hydrodynamic-Biogeochemical Model, *J. Marine Syst.*, 139, 139-158, doi:10.1016/j.jmarsys.2014.05.018.
10. 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.
11. 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, *Mar. Ecol. Prog. Ser.*, doi:10.3354/meps10248.
12. 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, *Estuar. Coast.*, doi: 10.1007/s12237-013-9592-5.
13. **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.
14. **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.
15. **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.**, R. Ji, Stephanie Jenouvrier, Meibing Jin, Julienne Stroeve, Garrett Campbell, Heather Lynch, Marika Holland, Spatio-temporal Variability of Coupling between Ice Retreat and Phytoplankton Blooms in the Southern Ocean, Gordon Research Conference, March 26-31, 2017, Ventura, CA
2. **Li, Y.**, E. W. Domack, R. H. Weisberg, L. Zheng, B. E. Rosenheim, and C. Subt, Ice-Ocean Dynamic Feedbacks for Rapid Deglaciation in Antarctic Calving Bays at Termination I, AGU Fall Meeting, December 12-16, 2016, San Francisco, CA.
3. Youngflesh, C., S. Jenouvrier, **Y. Li**, R. Ji, G. Ballard, W. Fraser and H. Lynch, Stochasticity in breeding phenology – importance of breeding synchrony in a colonial seabird, ESA Annual Meeting 2016, August 7-12, 2016, Fort Lauderdale, FL.
4. **Li, Y.**, R. Ji, S. Jenouvrier, M. Jin, J. Stroeve, G. Campbell, H. Lynch, and M. Holland, Spatio-temporal Variability of Coupling between Ice Retreat and Phytoplankton Blooms in the Southern Ocean, Ocean Sciences Meeting, February 21-26, 2016, New Orleans, LA.
5. **Li, Y.** and R. Ji, How representative is the Gulf of Maine of the Northwest Atlantic in terms of warming, freshening and bloom timing? RARGOM Annual Science Meeting, October 14, 2015, Portsmouth, NH.
6. **Li, Y.**, What Drives the Seasonal and Interannual Variability of Estuarine Hypoxia: Physics or Biology? (Invited talk), May 5, 2015. College of Marine Science, University of South Florida, FL, USA

7. **Li, Y.**, Stratification on the Northwest Atlantic shelf: climatology, interannual variability and biological implications (Invited talk). April 29, 2015. SMAST, University of Massachusetts, Dartmouth, MA, USA
8. **Li, Y.**, R. Ji, P. Fratantoni, C. Chen, Y. Sun and J. Hare. Changing rhythm of stratification on the Northwest Atlantic shelf: interannual variability and its biological implications. The 3rd Symposium on the Effect of Climate Change on the World's Oceans, March 23-27, 2015, Santos City, Brazil.
9. **Li, Y.**, R. Ji, P. Fratantoni, C. Chen, Y. Sun and J. Hare. Changing rhythm of stratification on the Northwest Atlantic shelf: interannual variability and its biological implications. RARGOM Annual Science Meeting, September 30, 2014, Boston, MA.
10. **Li, Y.**, R. Ji, P. Fratantoni, C. Chen, and J. Hare, C. Davis and R. Beardsley, Linking wind and surface salinity fluctuations on the Northwest Atlantic shelf: mechanism and implications, Ocean Sciences Meeting, February 23-28, 2014, Honolulu, HI.
11. **Li, Y.**, R. Ji*, P. Fratantoni, C. Chen, J. Hare, C. Davis and R. Beardsley. Linking wind and sea surface salinity fluctuation on the Northwest Atlantic shelf: Mechanisms and implications. RARGOM Annual Science Meeting, October 8, 2013, Portsmouth, NH.
12. **Li, Y.**, R. Ji, C. Chen, P. Fratantoni and J. Hare*, FATE 2012: Stratification Indices for Stock and Ecosystem Assessments From a Data Assimilative Circulation Model, 37th annual larval and fish conferences, June 2-6, 2013, Miami, FL.
13. **Li, Y.**, M. Li and P. Cheng, Modeling Study of the Mechanisms of Wind-Induced Lateral Circulation in a Straight, Stratified Channel, PECS Meeting, August 12-16, 2012, New York City, NY.
14. **Li, Y.** and M. Li, Dynamics of wind-induced lateral circulation and its effects on estuarine exchange flow and stratification. American Geophysical Union, Ocean Science Meeting, February 20-24, 2012, Salt Lake City, UT.
15. **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, MD.
16. **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, NJ.
17. **Li, Y.** and M. Li, Modeling Hypoxia Response to River Flow and Wind Forcing in Chesapeake Bay, American Geophysical Union, Ocean Science Meeting, February 22-26, 2010, Portland, OR.
18. **Li, Y.** and M. Li, Impact of Hurricane Isabel on hypoxia in Chesapeake Bay, American Geophysical Union, AGU Fall Meeting, December 12-19, 2008, San Francisco, CA.
19. **Li, Y.**, M. Li and L. Zhong, EOF Analysis of Wind-driven Currents in Chesapeake Bay, American Geophysical Union, Ocean Science Meeting, March 2-7, 2008, Orlando, FL.

Professional Service

Reviewers of proposals for National Science Foundation OCE and PLR programs
 (alphabetical) Continental Shelf Research
 Chinese Journal of Oceanology and Limnology
 Estuaries and Coasts

Estuarine, Coastal and Shelf Science
Fish Biology and Fisheries
Geophysical Research Letters
ICES Journal of Marine Science
Journal of Geophysical Research – Oceans
Journal of Marine Systems
Journal of Coastal Research
Ocean Modelling
Remote Sensing of Environment
Springer Book Chapters

Awards

2017 Ocean Carbon & Biogeochemistry (OCB) science workshop travel support
2008 Outstanding Student Paper Award, AGU Fall Meeting, San Francisco
2008-2011 Horn Point Graduate Research Assistantship
2008, 2009 Horn Point Student Travel Award

Teaching Experience

Spring 2007 Class lecture on “Dispersion of Point-Source Pollution”
Course: Modeling Dispersion Processes in Natural Waters
Fall 2007 Discussion leader on “Chesapeake Bay topics”
Ian Morris Chesapeake Discussion
Fall 2011 Class lecture on “Turbulence and Zooplankton Production”
Course: Fluid Dynamics Ecology
Spring 2013 Discussion leader on “Hypoxia in Coastal Waters”
WHOI Interdisciplinary postdoc reading group

Computation Skills and Experience

Language FORTRAN, C, Shell, MPI
Tool Matlab, R, NCL, NetCDF, GIS
Model **ROMS** (Regional Ocean Modeling System)
CESM (Community Earth System Model)
MITgcm (MIT General Circulation Model)
FVCOM (Finite-Volume, primitive equation Community Ocean Model)
RCA (Row-Column AESOP, three-dimensional water quality model including marine N, P, C, O₂ cycles and sediments, developed by HydroQual for application to marine and freshwater systems)