YUN LI

Assistant Professor

School of Marine Science and Policy, University of Delaware
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RESEARCH INTERESTS

Coupled hydrodynamic-biogeochemical models
Sea ice and phytoplankton phenology
Dissolved oxygen dynamics
Stratification dynamics
Estuarine circulation and secondary circulation

PROFESSIONAL EXPERIENCE

2019-present	**Assistant Professor** University of Delaware
2016-2019	**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** University of Maryland Center for Environmental Science

EDUCATION

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

RESEARCH GRANTS (as of 12/2019)

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).
2018-2020	**Gulf of Mexico Research Initiative** **Total: $709,456 Li: $188,292** *Effects of Mesoscale Eddies on Three-Dimensional Oil Dispersion: Data Integration, Interpretation and Implications for Oil Spill Models.* Collaborators: Xinfeng Liang (UDel), Robert Weisberg (USF) and Yonggang Liu (USF).

FIELD EXPERIENCE

03/2012	**R/V Sharp in Chesapeake Bay, USA** Meteorological buoy deployment; along- and cross-channel CTD surveys
05/2010	**R/V Caleta and R/V Neritic in James River, VA** Dye injection and patchiness measurement; along- and cross-channel ADCP and CTD surveys
08/2009	**R/V Centennial and R/V Auklet in Saratoga Passage and Skagit Bay** Operation of HOBO meteorological devices; deployment and recovery of ADCPs, two moorings and meteorological buoys; CTD casts and sonar images surveys

TEACHING EXPERIENCE

Spring 2020	**MAST492 Marine Environmental Studies** Co-instructor with Dr. James Corbett
10/2019	**Invited lecture in MAST606 Ocean & Atmosphere Remote Sensing** Linking Physical Dynamics to Phytoplankton Variability: Insights from Remote Sensing Data
03/2013	**Discussion leader on Hypoxia in Coastal Waters** WHOI Interdisciplinary postdoc reading group
11/2011	**Lecture in MEET608K Fluid Dynamics Ecology** Turbulence and Zooplankton Production
01/2008	**Discussion leader on "Chesapeake Bay topics"** Discussion with Ian Morris Scholar
05/2007	**Lecture in MEES711 Modeling Dispersion Processes in Natural Waters** Dispersion of Point-Source Pollution

PROFESSIONAL SERVICE

Reviewers of	Continental Shelf Research
(alphabetical)	Estuaries and Coasts
	Estuarine, Coastal and Shelf Science
	Fish Biology and Fisheries
	Frontiers in Marine Science
	Geophysical Research Letters
	Harbor Branch Oceanographic Institute Foundation
	ICES Journal of Marine Science
	Journal of Geophysical Research - Oceans
	Journal of Marine Systems
	Journal of Coastal Research
	National Science Foundation OCE
	National Science Foundation PLR
	Ocean Modelling
	Remote Sensing of Environment
	Springer Book Chapters

MANUSCRIPTS IN PREPARATION

1. ***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.
2. ***Li, Y.,*** et al., Impacts of match-mismatch between local and remote forcings on the occurrence of red tide bloom on the West Florida Shelf, in preparation.

MANUSCRIPTS UNDER REVIEW

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, in revision and to be submitted to *J. Geophys. Res.*
2. Youngflesh, C., **Y. Li**, H. J. Lynch, K. Delord, C. Barbraud, R. Ji, and S. Jenouvrier (under review) Divergent trends and unsynchronized dynamics - the challenge in finding effective ecological proxies, submitted to *Biological Conservation*.

PEER-REVIEWED PUBLICATIONS (Google Scholar H-index: 12; Total Citations: 362)

1. Ji, R., M. Jin, **Y. Li**, Y.-H. Kang, C.-K. Kang (2019), Variability of primary production among basins in the East/Japan Sea: Role of water column stability in modulating nutrient and light availability, *Progress in Oceanography*, 178, 102173, doi: 10.1016/j.pocean.2019.102173
2. Ji, B. Y., Z. O. Sandwith, W.J. Williams, O. Diaconescu, R. Ji, **Y. Li**, E. V. Scoy, M. Yamamoto-Kawai, S. Zimmermann, and R. H. R. Stanley (2019). Variations in rates of biological production in the Beaufort Gyre as the Arctic changes: Rates from 2011 to 2016. *Journal of Geophysical Research: Oceans*, 124, 3628-3644. doi: 10.1029/2018JC014805
3. RARGOM working group: Staudinger, M. D., K. E. Mills, K. Stamieszkin, N.R. Record, C. A. Hudak, A. Allyn, A. Diamond, K. D. Friedland, W. Golet, M. E. Henderson, C. M. Hernandez, T. G. Huntington, R. Ji, C. L. Johnson, D. S. Johnson, A. Jordaan, J. Kocik, **Y. Li**, M. Liebman, O. C. Nichols, D. Pendleton, R. A. Richards, T. Robben, A. C. Thomas, H. J. Walsh, K. Yakola (2019), It's about time: A synthesis of changing phenology in the Gulf of Maine ecosystem. *Fish Oceanogr.*, 28, 532-566, doi:10.1111/fog.12429
4. 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 Adelie penguins: How noisy is too noisy for adaptive management? *Nature Communications.* 8, doi:10.1038/s41467-017-00890-0.
5. 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.
6. 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

7. **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.
8. 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.
9. **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.
10. **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.
11. **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.
12. 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 O_2 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.
13. 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.
14. 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.
15. 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.
16. **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.
17. **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.
18. **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, and W. Zhang, Stratification Control of Phytoplankton Bloom in Circum-Antarctic Coastal Polynyas: Data Analysis and Modeling, Ocean Sciences Meeting, February 16-21, 2020, San Diego, CA.
2. **Li, Y.**, R. Ji, and M. Jin, Desynchronization between Sea Ice and Phytoplankton Bloom in a Changing Antarctic, Ocean Carbon and Biogeochemistry Summer Workshop, June 24-27, 2019, Woods Hole, MA.

3. **Li, Y.**, Impacts of match-mismatch between local and remote forcings on the occurrence of Florida red tide, Gulf of Mexico Oil Spill & Ecosystem Science Conference, February 4-7, 2019. New Orleans, LA.
4. **Li, Y.**, Physical Constraints on Phytoplankton Production, USF College of Marine Science Faculty Seminar, August 24, 2018, Saint Petersburg, FL.
5. **Li, Y.**, R. Ji, S. Jenouvrier, M. Jin, J. Stroeve, G. Campbell, H. Lynch, M. 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.
6. **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.
7. **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.
8. **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.
9. **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
10. **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
11. **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.
12. **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.
13. **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.
14. **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.
15. **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, The 37th annual larval and fish conferences, June 2-6, 2013, Miami, FL.
16. **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.
17. **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.

18. ***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.
19. ***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.
20. ***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.
21. ***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.
22. ***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.

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, O_2 cycles and sediments, developed by HydroQual for application to marine and freshwater systems)