# **CURRICULUM VITAE**

## **YIZHEN LI**

Postdoctoral Scholar Woods Hole Oceanographic Institution Woods Hole, Massachusetts 02543 October 2015

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# **EDUCATION**

- 2004 B.A. Marine Science, Ocean University of China
- 2007 M.S. Oceanography, Ocean University of China
- 2009 M.S., Marine Science, North Carolina State University
- 2012 Ph.D., Oceanography, North Carolina State University (NCSU) "Seasonal and Interannual Variability of Gulf of Maine Hydrodynamics and Their Coupling with Harmful Algal Blooms"

## PROFESSIONAL EXPERIENCE

- 2007-2012 Research Assistant, NCSU
- 2012- 2014 Postdoctoral Research Associate, NCSU
- 2014-Present Postdoctoral Scholar, Woods Hole Oceanographic Institution (Mentors: Drs. Dennis McGillicuddy, Donald Anderson, Weifeng Gordon Zhang, David Ralston)

## HONORS AND AWARDS

- 2012 Williams/Tobias Award for Excellence in Marine Science, NCSU
- 2012 Ocean Sciences Meeting Outstanding Student Paper Award, AGU & ASLO
- 2012 Outstanding Presentation Award, NCSU Graduate Research Symposium
- 2014 Postdoctoral Scholarship Award, Woods Hole Oceanographic Institution
- **2015** Outstanding Reviewer Award, American Society of Civil Engineers for excellent reviewing service for Journal of Hydrologic Engineering

## **RESEARCH INTERESTS**

- Ocean mesoscale eddy dynamics
- Coastal circulation dynamics
- Coupled bio-physical interactions: harmful algal blooms and larval dispersal modeling
- Variational data assimilation and observational network design

## **ONGOING PROJECTS (UNDERTAKEN)**

• NSF OCE- Processes Regulating Iron Supply at the Mesoscale in the Ross Sea, with D.J. McGillicuddy (WHOI), E. Hoffmann., J. Klinck, M. Dinniman (ODU), Walker Smith (VIMS). 2014-

• NOAA PCMHAB- Implementation of an operational model for prediction of Alexandrium fundyense blooms in the Gulf of Maine 2012-

#### **INVITED TALKS AND PRESENTATIONS**

NASA Jet Propulsion Laboratory	July 2009
Rutgers University, State University of New Jersey	October 2012
NOAA Southeast Fisheries Sciences Center-Beaufort Bran	ch July 2013
• Center for Marine Science and Technology, Beaufort, NC	April 2014
University of Massachusetts Dartmouth	March 2015
Applied Ocean Physics and Engineering, WHOI	March 2015
University of Oregon	April 2015

#### **REFEREED PUBLICATIONS**

#### **PUBLISHED:**

- Li, Y., He, R., D. McGillicuddy, D. Anderson, B. Keafer (2009), Investigation of 2006 Alexandrium fundyense bloom in the Gulf of Maine: In situ observations and numerical modeling, <u>Continental Shelf Research</u>, http://dx.doi.org/10.1016/j.csr.2009.07.012.
- McGillicuddy, D.J., Townsend, D.W., He, R., Keafer, B.A., Kleindinst, J.L., Li, Y., Manning, J.P., Mountain, D.G., Thomas, M.A., and D.M. Anderson (2011), Suppression of the 2010 *Alexandrium fundyense* bloom by changes in physical, biological, and chemical properties of the Gulf of Maine. *Limnology and Oceanography*, 56(6), 2411–2426.
- Young, C. M., He. R., Li, Y., Qian, H., Emlet, R., Van Gaest, A., Arellano, S., Bennett, K., Smart, T., Wolf, M., Rice, M. (2012), Larval Life and Dispersal Potential of Deep-sea Animals from the Intra-American Seas, <u>Integrative and Comparative Biology</u>, pp. 1-14, doi:10.1093/icb/ics090.
- Li, Y., He, R., and D.J. McGillicuddy (2014a), Seasonal and interannual variability in Gulf of Maine hydrodynamics: 2002-2011, <u>Deep-Sea Research II</u>, http://dx.doi.org/10.1016/j.dsr2.2013.03.001.
- Li, Y., R., He and J. P. Manning (2014b), Coastal connectivity in the Gulf of Maine in spring and summer of 2004–2009, *Deep-Sea Research II*, http://dx.doi.org/10.1016/j.dsr2.2013.01.037.
- Li, Y., and He, R. (2014c), Spatial and Temporal Variability of SST and Ocean Color in the Gulf of Maine Based on Cloud-free SST and Chlorophyll Reconstructions in 2003-2012, <u>Remote</u> <u>Sensing of Environment</u>, http://dx.doi.org/10.1016/j.rse.2014.01.019.
- Qian, H., Li, Y., He, R., and D. Eggleston (2014), Connectivity in the Intra-American Seas and Implications for Potential Larval Transport, *Coral Reefs*, DOI 10.1007/s00338-014-1244-0.
- Liu, N., Zeng, L., Li, Y., and Xiu P. (2014), Modeling dissolved organic carbon and carbon export in the equatorial Pacific Ocean, <u>Geo-Marine Letters</u>, DOI 10.1007/s00367-014-0394-y.
- Zeng, X., Li, Y., and R., He (2015), Predictability of the Loop Current variation and eddy shedding process in the Gulf of Mexico using an artificial neural network approach, <u>Journal</u> <u>Atmospheric and Oceanic Technology</u>, doi: http://dx.doi.org/10.1175/JTECH-D-14-00176.1.
- Zeng, X., Li, Y., He, R., and Y. Yin (2015), Clustering of Loop Current patterns based on the satellite-observed sea surface height and self-organizing map, <u>*Remote Sensing Letters*</u>, 6:1, 11-19, DOI: 10.1080/2150704X.2014.998347

Li, Y., He, R., Chen, K., and D. J. McGillicuddy (2015), Variational Data Assimilative Modeling Investigation of Gulf of Maine Coastal Circulation in Spring and Summer 2010, *Journal of Geophysical Research-Oceans*, DOI 10.1002/2014JC010492.

#### **IN REVIEW/PREP:**

- Li, Y., D. J. McGillicuddy, M., Dinniman, Why is the western Ross Sea so productive? Insights from sea ice model sensitivity experiments, in prep.
- Li, Y., D. J. McGillicuddy, M., Dinniman, and J. Klinck, Processes regulating formation of low-salinity high-biomass lenses near the edge of the Ross Ice Shelf, *Journal of Physical* <u>Oceanography</u>, submitted.
- R. Stumpf, Li, Y., D. J. McGillicuddy, and He, R., Population Dynamics of *Alexandrium fundyense* in the Gulf of Maine during an intense red ride: MERIS observations and model simulations, *Harmful Algae*, in prep.
- Li, Y., He, R., D. J. McGillicuddy, and D.M. Anderson, Diagnosing evolution of the 2008 *Alexandrium fundyense* bloom in the Gulf of Maine using *in situ* observations and a coupled bio-physical model simulations, *Biogeosciences*, in prep.
- Shropshire, T., Li, Y., and He, R., Storm impact on sea surface temperature and chlorophyll a in the northwest Atlantic based on daily cloud-free satellite data reconstructions, <u>Scientific</u> <u>Reports</u>, revised and resubmitted.

### **OTHER PUBLICATIONS**

- Li, Y., and J. Zhao (2006), A study on the Antarctic circumpolar wave mode--A coexistence system of standing and traveling waves, <u>Chinese Journal of Polar Science</u>, Vol. 17, No. 2, 100-105.
- Li, S., Zhao, J. and Y. Li (2008), A study on the decadal variability of sea surface height in the tropical Pacific, <u>Advances in Marine Science (In Chinese with English Abstract)</u>, vol. 26-2, pp 163-170.
- Yin, Y., Lin,X., Li,Y., and X. Zeng, Seasonal variability of Kuroshio intrusion northeast of Taiwan as revealed by self-organizing map (2014), <u>Chinese Journal of Limnology and</u> <u>Oceanography</u>.

#### PROFESSIONAL SOCIETIES AND REVIEW SERVICE

Member, American Geophysical Union (AGU)	2007-
• Member, Association for the Limnology and Oceanography (ASLO)	2010-
• Member, Society for Industrial and Applied Mathematics (SIAM)	2013-
Review Editor, Frontiers in Marine Science	2014-
• Session Chair: 2016 Ocean Sciences Meeting: Advances in understanding	biogeochemical
processes in the coastal oceans: modeling, observations and predictions (Session	# 9545)
• (Selected) journal and book review service for	
AGU Monographs-Gulf of Mexico Oil Spill a record-breaking enterprise	
Journal of Geophysical Research-Oceans; Journal of Geophysical Research-Biogeos	sciences;
Continental Shelf Research; Deep Sea Research; Progress in Oceanography;	

Remote Sensing of Environment; Remote Sensing; International Journal of Remote Sensing;

Journal of Hydrologic Engineering; International Journal of Climatology

#### PARTICIPATION IN EDUCATION PROGRAM

•	Special topic coastal ocean modeling, NCSU graduate course	2009-2010
•	Dynamics of shelf circulation NCSU graduate course	2009-2010

- Certificate in teaching techniques, NCSU
- MIT-WHOI Joint Program graduate course (12.823): Modeling biology and physics of the ocean: with Dennis McGillicuddy and Glen Flierl

2013

### WORKSHOP PARTICIPATION

_	DOMS data and initiation and data and University of California South Care	3010
•	ROMS data assimilation workshop, University of California Santa Cruz	2010
•	Gulf of Mexico GOMEX PPP project workshop, Jet Propulsion Laboratory	2010
•	Gulf of Maine Toxicity (GOMTOX) project workshops, Portland, ME 2008, 2009, 2011	, 2012,
	2014, 2015	
•	Woods Hole Center for Oceans and Human Health (WHCOHH) meeting, WHOI	2015
•	Processes Regulating Iron Supply in the Ross Sea (PRISM) project meeting, ODU 2014	, 2015

#### **RESEARCH CRUISE FIELD CAMPAIGN**

• Sediment Survey Cruise for the Yellow Sea, Dongying, China	2005
• Tidal surveys in Jiaozhou Bay and Laizhou Bay, China.	2005, 2006, 2007
• Ocean Salinity Remote Sensing Project (Dalian, China).	2006
• Six Tidal Survey in the Yellow Sea.	2006
• NCSU research cruises of Hatteras Front, R/V Cape Hatteras.	September 2008
Glider Deployment/Recovery cruises, Wilmington, NC.	2011, 2012, 2013

### **PROFESSIONAL MEETING PAPERS and ABSTRACTS**

- Li, Y., and J. Zhao, The propagation of the Antarctic Circumpolar Wave, <u>Chinese symposium of</u> <u>Polar Science</u>, Xi'an, China, July 2006.
- Li, Y., He, R, D. J. McGillicuddy Jr., D M Anderson, B. A. Keafer, Investigation of the Gulf of Maine Circulation and Alexandrium fundyense Bloom in summer 2006: In Situ Observations and Numerical Modeling, OS32B-03, <u>2008 AGU Fall Meeting</u>, San Francisco, 2008.
- Li, Y., and He, R. (2009), Interannual Forcing and Hydrography Variability in the Gulf of Maine and Their Implications on the Harmful Algal Bloom: 2002-2008, <u>Mid-Atlantic Bight Physical</u> <u>Oceanography Meteorology & Southeast Coastal Oceanography and Meteorology Conference</u>, Raleigh, NC.
- He, R, D.J. McGillicuddy, D. M. Anderson, B. Keafer and Y. Li, IT33B-07, Predicting Harmful Algal Blooms in the Gulf of Maine: From Event Hindcasting to Seasonal Forecasting (Invited), <u>2010 AGU Ocean Science Meeting</u>, Portland, Oregon, Feb 21-27, 2010.
- Li, Y., and R. He, Quantifying the coastal connectivity in the Gulf of Maine, IT 45F-05, <u>2010 AGU</u> Ocean Science Meeting, Portland, Oregon, Feb 21-27, 2010.
- D.M. Anderson, R., He, D.J. McGillicuddy, B.A.Keafer, and Y., Li, Predicting Harmful Algal Blooms in the Gulf of Maine: From Event Hindcasting to Seasonal Forecasting, , <u>14<sup>th</sup></u>

International Conference on Harmful Algae, Nov 1-5, 2010, Crete, Greece.

- R. He, Y., Li, D.J. McGillicuddy, D. Anderson and B. Keafer, Hindcast of the GOM A. fundyense bloom using the coupled biophysical model, <u>NOAA GOMTOX PI meeting</u>, Portland, Maine, Dec., 2010.
- He, R., Y., Li and D.J. McGillicuddy, Interannual variability in hydrographic conditions: NERACOOS time series and shipboard measurements, <u>NOAA GOMTOX PI meeting</u>, Portland, Maine, Dec., 2010.
- Li, Y., and He., R, The coastal connectivity in the Gulf of Maine, <u>Gordon Research Conferences for</u> <u>Coastal Ocean Modeling</u>, Mount Holyoke College, South Hadley, MA, July 2011.
- He, R., McGillicuddy, D., Anderson D., Keafer, B., Y. Li, Predicting the Harmful Algal Bloom in the Gulf of Maine: From Seasonal Ensemble Forecasting to Data Assimilative Hindcasting, EGU General Assembly, 2011, Vienna, Austria.
- D.J. McGillicuddy, Jr., D.M. Anderson, R. He, B.A. Keafer, J. Kleindinst, Y. Li, J.P. Manning, D.G. Mountain, D.W. Townsend, Suppression of the 2010 Alexandrium fundyense bloom by changes in physical, biological, and chemical properties of the Gulf of Maine, the 6<sup>th</sup> Symposium on harmful Algae, 2011, Austin, Texas.
- Y. Li , R.,He, and D.J. McGillicuddy, Seasonal and Interannual Variability of the Gulf of Maine Coastal Circulation and Hydrography (B1245-061), 2012 Ocean Science Meeting, Salt Lake City, Utah.
- Qian, H, He, R., and Y. Li, Connectivity in the Intra-Americas Seas, 2013 Gulf of Mexico Oil Spill & Ecosystem Science Conference, New Orleans, January 2013.
- He, R., Li, Y., D. J. McGillicuddy and D.A. Anderson, Seasonal Prediction of 2013 Alexandrium fundyense bloom in the Gulf of Maine, PCMHAB-MERHAB meeting, Portland, Maine, Jan 30-Feb 1, 2013.
- Li, Y., Qian, H., and He, R., Circulation in the Intra-Americas Seas and implication for the coral reef connectivity and management: a revisit using an eddy-resolving circulation model, 2<sup>nd</sup> Postdoctoral Symposium, North Carolina State University, June 05, 2013.
- Zeng, X., Li, Y., and He, R., Predictability of the Loop Current shedding processes using machine learning techniques, MEA-FER joint symposium (Oral Talk), North Carolina State University, August 17, 2013.
- He, R., Li., Y., D. J. McGillicuddy, D. M. Anderson, Predicting red tide in the Gulf of Maine, GODAE Project Meeting (Poster presentation), Washington DC, November 04, 2013.
- Li, Y., He, R., and K. Chen, Data assimilative hindcast investigation of ocean circulation in spring and summer 2010 in the Gulf of Maine, oral presentation, 2014 Ocean Sciences Meeting, Honolulu, Hawaii, February, 2014.
- Zeng, X., Li, Y., and He, R., Predictability of the Loop Current shedding processes using machine learning techniques, Graduate Research Symposium, North Carolina State University, March, 2014.
- Li, Y., He, R., Predicting red tide tgv in the Gulf of Maine, NCSU-UNC postdoctoral research symposium, May, 2014.
- Li, Y., He, R., D.J. McGillicuddy, Variational data assimilation of Gulf of Maine in spring and summer 2010, Gordon Research Conference on coastal ocean modeling, University of New England, May, 2015.

- Zeng, X., Li, Y., He, R., Predictability of loop current shedding processes in the Gulf of Mexico, Gordon Research Conference on coastal ocean modeling, University of New England, May, 2015.
- Li, Y., and D.J. McGillicuddy, Physical and biological processes near the edge of the Ross Ice Shelf, PRISM project meeting presentation, Woods Hole Oceanographic Institution, July, 2015.

#### **Professional References**

Dr. Dennis McGillicuddy, Senior Scientist,

Applied Ocean Physics and Engineering, Woods Hole Oceanographic Institution

Dr. Ruoying He, Distinguished Professor,

Marine, Earth, and Atmospheric Sciences, North Carolina State University

Dr. Donald Anderson, Senior Scientist,

Department of Biology, Woods Hole Oceanographic Institution

Dr. Craig Young, AAAS Fellow, Director and Professor,

Oregon Institute of Marine Biology, University of Oregon