

## **KELLY LUIS**

Ph. D. Candidate, School for the Environment, University of Massachusetts  
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### EDUCATION

**Ph.D. Candidate, Marine Science and Technology**, University of Massachusetts-Boston

Thesis: Coastal and Inland Ocean Color Remote Sensing for Water Quality Monitoring

Advisor: Zhongping Lee

Committee Members: Robert Chen, Jarrett Byrnes, Cedric Fichot, and Jianwei Wei

Expected Graduation: Spring 2021

**B.A., Environmental Science**, Columbia University, New York, NY, 2015

Senior Thesis: Calcium Carbonate Burial in the North Pacific

Thesis Advisor: Jerry McManus

### RESEARCH INTERESTS

Development, validation, and application of ocean color remote sensing approaches for aquatic ecosystem monitoring, forecasting, and management

### RELEVANT WORK EXPERIENCE

Career Building Coordinator, Woods Hole Partnership Education Program	2020.5-2020.8
Research Assistant II, Woods Hole Oceanographic Institution	2015.8-2016.8
Research Intern, Woods Hole Partnership Education Program	2015.5-2015.8
National Science Foundation-REU Intern, Central Caribbean Marine Institute	2014.5-2014.8
Course Assistant, Earth Institute at Columbia University	2013.5-2015.5
Lab Assistant, Lamont Doherty Earth Observatory	2012-2014.5

### HONORS

Robert & Patricia Switzer Foundation – Switzer Environmental Fellow	2020
ASLO – Limnology and Oceanography Research Exchange Fellow	2019
Ford Foundation – Predoctoral Fellowship	2018
National Science Foundation –IGERT Advanced Fellowship	2016
University of California-Santa Cruz – Climate Engagement Fellow	2017
National Science Foundation –IGERT Fellowship	2016
Woods Hole Oceanographic Institution – Whelan Memorial Grant	2016
Mellon Mays Undergraduate Research Fellowship	2013

## PUBLICATIONS

**Luis, K.**, Lee, Z. The fusion of multispectral ocean color sensors for water clarity monitoring. (*in prep*)

Lee, Z., Shang, S., Yonghong, L., **Luis, K.**, Dai, M. Chromocline: A Quantitative Description of the Variation of Light Quality with Depth in the Ocean (submitted to *ASLO-Methods*)

Scott Pricé, O., **Luis, K.**, Pricé, A., Harden, B., Howard, J., Valentin, L., Liles, G., Jearld, A. Same Program Different Delivery: Adapting the Woods Hole Partnership Education Program for a Virtual Era (accepted by *ASLO - Bulletin*)

Lee, Z., Wang, Y., Yu, X., Shang, S., **Luis, K.** Evaluation of forward reflectance and empirical algorithm for chlorophyll concentration of stratified waters. (accepted by *Optics Express*)

Wei, J., Wang, M., Lee, Z., Briceño, H. O., Yu, X., Jiang, L., ... & **Luis, K.** (2020). Shallow water bathymetry with multi-spectral satellite ocean color sensors: Leveraging temporal variation in image data. *Remote Sensing of Environment*, 250, 112035.

**Luis, K. M.**, Rheuban, J. E., Kavanaugh, M. T., Glover, D. M., Wei, J., Lee, Z., & Doney, S. C. (2019). Capturing coastal water clarity variability with Landsat 8. *Marine Pollution Bulletin*, 145, 96-104.

Torres, A. D., Keppel-Aleks, G., Doney, S. C., Fendrock, M., **Luis, K.**, De Mazière, M., ... & Sussmann, R. (2019). A geostatistical framework for quantifying the imprint of mesoscale atmospheric transport on satellite trace gas retrievals. *Journal of Geophysical Research: Atmospheres*, 124(17-18), 9773-9795.

Kavanaugh, M. T., Rheuban, J. E., **Luis, K. M.**, & Doney, S. C. (2017). Thirty-Three Years of Ocean Benthic Warming Along the US Northeast Continental Shelf and Slope: Patterns, Drivers, and Ecological Consequences. *Journal of Geophysical Research: Oceans*, 122(12), 9399-9414.

Lee, Z., Shang, S., Lin, G., Liu, T., Liu, Y., Du, K., & **Luis, K.** (2017). Secchi disk observation with spectral-selective glasses in blue and green waters. *Optics Express*, 25(17), 19878-19885.

## MEDIA & NON-PEER REVIEWED PUBLICATIONS

**Luis, K.** The Simplification of an Indigenous Scientist (accepted ASLO - Bulletin)

**Luis, K.** [Online Conversations for Equity, Action, and Networking](#). ASLO Blog

**Luis, K.** [Ocean Hues](#). Schmidt Institute Cruise Log: Studying the Sea-Surface Microlayer 2

**Luis, K.** [TOS Student Highlight](#). The Oceanography Society Student Newsletter

## CONFERENCE ACTIVITY & PARTICIPATION

**Luis, K., Lee, Z.** Fusing Multiple Ocean Color Sensors for Coastal Water Clarity Monitoring. School for the Environment – Earth Day Symposium 2020, (virtual poster)

**Luis, K., Lee, Z.** The fusion of multispectral ocean color sensors for water clarity monitoring. Ocean Sciences 2020, San Diego, CA (poster presentation)

Chen, R., **Luis, K.**, Largier, J. Transdisciplinary Research and Education in Coastal Systems Posters, San Diego, CA (co-chair)

**Luis, K., Lee, Z., McNally, S.** Remote Sensing of Water Quality Parameters for *Vibrio* spp. monitoring. School for the Environment – Earth Day Symposium 2019, Boston, MA (oral presentation)

**Luis, K., Lee, Z.**, Capturing coastal water clarity variations with Landsat 8 and Citizen Science. Ocean Sciences Meeting 2018, Dubrovnik, Croatia (poster presentation, sponsored by TOS student travel award)

Davis, S, Foint, Y., **Luis, K.**, Sheldon, P. Water Security. Land of a Thousand Ideas: Rwanda and the Sustainability Challenge 2018, Boston, MA (oral presentation)

**Luis, K., Lee, Z.**, Capturing coastal water clarity variations with Landsat 8 and Citizen Science. Ocean Sciences Meeting 2018, Portland, OR (poster presentation)

**Luis, K., Doney, S.** Measuring Carbon Dioxide from Space. Woods Hole Partnership Education Program Symposium 2015, Woods Hole, MA (oral presentation)

## GRANTS

NASA – MUREP INCLUDES Planning Grant, author	2020
Partners Aligned To Heighten broad participation in STEM	
Woods Hole Sea Grant – Advancing Diversity, Equity, and Inclusion, PI	2020
Online Conversation for Equity, Action, and Networking	
Woods Hole Sea Grant – Advancing Diversity, Equity, and Inclusion	2020
Partnership Education Program-II, author	
Social Sciences Research Council – Graduate Enhancement Grant, PI	2019
Remote Sensing of Water Quality Parameters for Vibrio Monitoring	
Social Sciences Research Council – Dissertation Development Grant, PI	2018
After the storm: Coastal Underwater Habitat Mapping for Improved Storm Response and Coastal Management	

## INVITED TALKS & PANELS

Indigenous Peoples Day at UMass Boston ( <i>Moderator</i> )	2020
Title: Climate Change and Indigenous Resistance: An Intergeneration and Inter-tribal Conversation	
Sea Education Association – The Ocean Odyssey Lecture Series	2020
Title: Painting the Oceans with Satellites and Planes	
Lamont Doherty Earth Observatory – Biology Department Seminar Talk	2020
Title: Coastal and Inland Ocean Color Water Quality Monitoring	
Documentary Educational Resources ( <i>Discussion Panelist</i> )	2019
Documentary: Smokin' Fish	
Ocean Sciences Meeting – Fluid Oceans: Pecha Kucha Evening	2018
Title: Satellite Imagery	

## TEACHING & MENTORING:

**Associate Lecturer**, Spring 2020, The Urban Oceans, University of Massachusetts – Boston  
**Guest Lecturer**, Spring 2019, Coral Reefs and Climate Change for Climate Change, Emerson College  
**Guest Lecturer**, Spring 2019, Ocean Acidification and Aquatic Optics for Introduction to Oceans, University of Massachusetts-Boston  
**Undergraduate Mentor**, 2020, for Ryan Smith, Orpheus Meletis, and Samuel Domingues  
**Participant**, University of Massachusetts-Boston's Graduate Teaching Program  
**Course Assistant**, 2013-2015, Environmental Sustainability and Corporate Decision Making, Introductory to Ecology, Climate Change Adaptation and Natural Disasters, Climate and Biodiversity, Evolution: Darwin to DNA, and Systems and Sustainability, Earth Institute at Columbia University

## CRUISES & FIELDWORK

**Massachusetts Bay, Massachusetts, *R/V Neritic***, NOAA-VIIRS Validation Day Cruises, 2016-present

**Suva, Fiji, *R/V Falkor***, Sea Surface Microlayer 2, November – December 2019

**Maui, Hawaii**, 32' Dive boat, NASA HypsIRI and CORAL Campaigns, February 2017 and 2018

## COURSES AND CERTIFICATIONS

**Commonwealth Seminar: Opening the Doors of Government to Everyone** – Fall 2020, Boston, MA

**Near Term Ecological Forecasting Course** – July 2019, Boston University, Boston, MA

**Imaging FlowCytobot Training Course** – November 2018, McLane Research Laboratories, Inc., Falmouth, MA

**Calibration and Validation of Ocean Color Remote Sensing Course** – June 2017, Darling Marine Center, Damariscotta, ME (Travel expenses sponsored by Ocean Carbon & Biogeochemistry)

**PADI Open Water Diver, Advanced Diver, and Rescue Diver** – Summer 2014, Little Cayman, Cayman Islands

**Emergency First Responder** – Summer 2014, Little Cayman, Cayman Islands

## COMMUNITY ENGAGEMENT

**OSM 2022 Scientific Committee ASLO Student Representative**, Fall 2020-Present

**Girls Who Code Lead Instructor**, 2016-Present, Grove Hall Branch of the Boston Public Library, Dorchester, MA

**NASA HypsIRI Outreach Activities Coordinator**, 2017 & 2018, Maui, HI

**SUBMERGE Marine Science Festival Volunteer**, 2017, Hudson River Park, New York, NY

**Neponset RiverFest Volunteer**, 2018, Neponset River, Dorchester, MA

**Ocean Sciences Meeting K-12 Day Mentor**, 2018, Portland, Oregon

**Hōkūle'a Coordinator and Guest Crew Member**, 2018, Massachusetts

## ACADEMIC & INSTITUTIONAL SERVICE

Convener of the School for the Environment Graduate Student Anti-Racism Taskforce

Convener of UMass-Boston's Machine Learning in R Group

Peer Reviewer: Estuarine, Coastal, and Shelf Science

Peer Reviewer: Limnology and Oceanography Letters

Peer Reviewer: Marine Pollution Bulletin

## MEMBERSHIPS

Ecological Forecasting Initiative

Columbia Alumni Representative Committee

Association for Sciences in Limnology and Oceanography

The Oceanography Society

Society for Advancement of Chicanos/Hispanics & Native Americans in Science

Growing Women in Science

Massachusetts Orchid Society

## RELEVANT RESEARCH SKILLS

Computational:

- Proficient in OS, Linux, Python, MATLAB, SeaDAS, ACOLITE, Hydrolight, High-Performance Computing Clusters
- Familiar with R, Bash, Google Earth Engine, SNAP, Tensorflow, ArcGIS

Instrumentation:

- Field: Hyperpro-profiler, Spectral Evolution – Handheld Radiometer, AC-9, AC-S, BB7, Microtops sunphotometer, CTD, Secchi Disk, Van Dorn Sampling
- Laboratory: UV-Probe, Imaging Flow Cytobot (benchtop), VINDTA 3-C