KELLY LUIS

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

Ph.D., 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
Defended: May 2021 (Degree Conferral August 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

Research Assistant, University of Massachusetts Boston	2021.6-Present
Associate Lecturer, University of Massachusetts Boston	2020.1-2021.5
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	2012.1-2014.5

HONORS

NASA Postdoctoral Program Fellowship	2021
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 Fund   2016
Columbia University - King's Crown Leadership Award: Columbia Spirit   2015
Mellon Mays Undergraduate Research Fellowship   2013
Columbia University – Richard E. Witten Scholarship Recipient   2011

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. Three-dimensional variation of light quality in the upper water column revealed with a single parameter (*accepted by Transactions on Geoscience and Remote Sensing)*

Scott Price, O., **Luis, K.,** Price, A. L., Harden, B., Howard, J., Valentin, L. E., Liles, G., Jearld Jr A. (2020). Same Program Different Delivery: Adapting the Woods Hole Partnership Education Program for a Virtual Era. *Limnology and Oceanography Bulletin*, *29*(4), 117-124.

Lee, Z., Wang, Y., Yu, X., Shang, S., **Luis, K.** Evaluation of forward reflectance and empirical algorithm for chlorophyll concentration of stratified waters. *Applied Optics,* 59(30) 9340-9352.

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. *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. Fusion of Ocean Color Sensors for Global Water Clarity Monitoring – 2nd International Ocean Color Symposium, (virtual poster)

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

Social Sciences Research Council – Predoctoral Research Development, PI   2020
      Coastal and Inland Ocean Color Remote Sensing for Water
      Quality Monitoring
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

Massachusetts Institute of Technology – EAPS Seminar Series   2021
      Title: Finding Clarity in the Crowd: Improving Water Quality Montitoring
Harris Center for Conservation Education – Women in Science Series   2021
      Title: The Urban Ocean – The View from Boston Harbor
Indigenous Peoples Day at UMass Boston (*Moderator*)   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 (*Discussion Panelist*)   2019
      Documentary: Smokin' Fish
Ocean Sciences Meeting – Fluid Oceans: Pecha Kucha Evening   2018
      Title: Satellite Imagery

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 HyspIRI and CORAL Campaigns, February 2017 and 2018

TEACHING & MENTORING:

Associate Lecturer & Founding Instructor, Spring 2020 & Spring 2021, 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

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

Association for Limnology & Oceanography Early Career Researcher Committee, January 2021 - Present
Ocean Sciences Meeting 2022 ASLO Student Program Representative, Fall 2020-Present
Girls Who Code Lead Instructor, 2016-Present, Grove Hall Branch of the Boston Public

Library, Dorchester, MA
NASA HyspIRI 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 Deep Learning 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 Linux, Mac, Python, MATLAB, R, SeaDAS, ACOLITE, Hydrolight, High-Performance Computing Clusters (SLURM, LSF), Google Earth Engine, Git
- Familiar with SNAP, Tensorflow, ArcGIS, QGIS

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