

Emily J. Chua

(she/her/hers)

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EDUCATION

Ph.D. in Earth & Environment, Boston University | Boston, MA, US *August 2022*
Advanced Graduate Certificate in Biogeoscience
Thesis: *Investigating biogeochemical cycling in coastal sediments with a novel mass spectrometer system*

B.Sc. Combined Honors in Physics & Oceanography, Dalhousie University | Halifax, NS, Canada *May 2015*
Honors Thesis: *Wave-current interactions in Digby Gut*

EMPLOYMENT

Postdoctoral Research Fellow, Boston College, Dept. of Earth and Environmental Sciences *Fall 2023 - present*
Advisers: Dr. Hilary I. Palevsky and Dr. Noah P. Snyder

Visiting Assistant Professor, Boston College, Dept. of Earth and Environmental Sciences *Fall 2022 - Spring 2023*
Exploring the Earth (EESC1132; 4 credits; 46 students; Fall '22)
Environmental Geosciences: Earth Processes and Risks (EESC1168; 3 credits; 58 students; Fall '22)
Environmental Oceanography (EESC3380; 3 credits; 15 students; Spring '23)
Environmental Systems: Water Resources (EESC2203; 3 credits; 32 students; Spring '23)
Environmental Systems: Climate Change (EESC2205; 3 credits; 30 students; Spring '23)

Instructor, Boston University Writing Program *Fall 2020 - Spring 2022*
First-Year Writing Seminar (WR120: Planet Ocean; 4 credits; 17 students; Fall '20 & Fall '21)
Writing, Research, & Inquiry (WR151: Unseen Oceans; 4 credits; 18 students; Spring '21 & Spring '22)

Teaching Assistant, Boston University Dept. of Earth & Environment *Spring 2017*
Introduction to Hydrology (ES317)

RESEARCH EXPERIENCE

Graduate Researcher, Boston University, Dept. of Earth & Environment *2015 - 2022*
Developed a novel flow-injection mass spectrometer system and applied it in field measurements and laboratory experiments to investigate biogeochemical cycling in coastal sediments

Undergraduate Honors Student, Dalhousie University, Depts. of Physics & Oceanography *2014 - 2015*
Analyzed acoustic Doppler current profiler data and conducted model simulations to predict wave conditions at a potential tidal turbine placement site in the Bay of Fundy

Research Assistant, Dalhousie University, Dept. of Oceanography *Spring 2015*
Assisted project to develop an underway gas chromatography system for measuring dissolved gases

Summer Student Fellow, Woods Hole Oceanographic Institution *Summer 2014*
Developed the membrane inlet of a novel chemical sensor to measure gases in the deep sea

Research Intern, University of Konstanz (Germany), Hybrid Nanostructures group *Summer 2013*
Investigated charge transport in solar cells using novel films and nanowire arrays

Research Assistant, Dalhousie University, Dept. of Oceanography *Summer 2012*
Assisted in the running of two oceanography labs; participated in research cruise to Newfoundland

PEER-REVIEWED PUBLICATIONS (*corresponding author)

- Chua, E.J.*** and Fulweiler, R.W. (2023). Capturing the rapid response of sediments to low-oxygen conditions with high temporal resolution gas concentration measurements. *Frontiers in Environmental Science*, 10.
<https://doi.org/10.3389/fenvs.2022.1028405>
- Chua, E.J.***, Huettel, M., Fennel, K., and Fulweiler, R.W. (2022). A case for addressing the unresolved role of permeable shelf sediments in ocean denitrification. *Limnology and Oceanography: Letters*, 7(1), 11-25.
<https://doi.org/10.1002/lol2.10218>
- Chua, E.J.***, Cardenas-Valencia, A.M., Short, R.T., Savidge, W., and Fulweiler, R.W. (2021). A mass spectrometer-based porewater sampling system for sandy sediments. *Limnology and Oceanography: Methods*, 19(11), 769-784.
<https://doi.org/10.1002/lom3.10460>
- Chua, E.J.***, Savidge, W., Short, R.T., Cardenas-Valencia, A.M., and Fulweiler, R.W. (2016). A review of the emerging field of underwater mass spectrometry. *Frontiers in Marine Science*, 3(209).
<https://doi.org/10.3389/fmars.2016.00209>
- Kalb J.*, Dorman, J.A., Folger, A., Gerigk, M., Knittel, V., Plüsch, C.S., Trepka, B., Lehr D., **Chua, E.J.**, Goodge, B.H., Wittemann, A., Scheu, C., Polarz S., and Schmidt-Mende, L. (2018). Influence of substrates and rutile seed layers on the assembly of hydrothermally grown rutile TiO₂ nanorod arrays. *Journal of Crystal Growth*, 494.
<https://doi.org/10.1016/j.jcrysgro.2018.05.004>

FELLOWSHIPS & AWARDS

Graduate Writing Fellowship, Boston University – full Ph.D. funding & fees	2020 – 2022
Warren-McLeod Graduate Fellowship in Marine Science, Boston University – full Ph.D. funding	2019 – 2020
Limnology & Oceanography Research Exchange Program Award, ASLO	2019 – 2020
Graduate Research Abroad Fellowship, Boston University – US\$5,970	Summer 2019
Warren-McLeod Summer Research Fellowship, Boston University – US\$11,000	Summer 2018
Deep Submergence Science Committee (DeSSC) Travel Award – US\$600	2018
Biogeoscience Symposium Best Graduate Student Talk, Boston University	2017
Harsh-Environment Mass Spectrometry (HEMS) Workshop Student Travel Award – US\$1,250	2017
Postgraduate Scholarship, National Sciences & Engineering Research Council of Canada – C\$63,000	2016 - 2019
Dieter Family Scholarship – US\$1,500	2016
Biogeoscience Student Award, Boston University – \$500	2016
Alexander Graham Bell Canada Graduate Scholarship (<i>declined</i>) – C\$105,000	2016
Fulbright Canada Student Award – US\$15,000	2015 – 2016
Dean’s Fellowship, Boston University – full Ph.D. funding	2015
Nova Scotia Research & Innovation Graduate Scholarship (<i>declined</i>) – C\$20,000	2015
Transatlantic Ocean System Science & Technology Research School Scholarship – C\$4,335	2015
Dr. A. Stanley MacKenzie Prize – Highest standing in senior-year Physics at Dalhousie University	2015
Woods Hole Oceanographic Institution Conference Travel Award – US\$2,500	2014
Woods Hole Oceanographic Institution Summer Student Fellowship – US\$10,200	2014
DAAD Research Internship in Science & Engineering Scholarship – C\$4,000	2013

OUTREACH & LEADERSHIP ACTIVITIES

Writer & Editor , <i>Oceanbites</i> Contributed regularly to popular science blog that makes marine science accessible to non-experts	2019 - 2022
Technology Business & Marketing Analyst , Office of Technology Development, Boston University Assessed new technology disclosures; wrote technology briefs; created marketing packages	2019 - 2021
Scientist Mentor , <i>Letters to a Pre-Scientist</i> Volunteered as a pen pal and STEM role model with a middle-school student	2017 - 2018
Project Lead , <i>Handbook on International Research Collaborations</i> Spearheaded project to create an open-source resource on how to conduct international research with 10 other graduate students from across the US	Summer 2019
Guest Speaker , <i>Taste of Science Boston Festival</i> Spoke about dissertation work at "Earth Day: Fixing the Planet!" event at a local bar	April 2019
Science Communication Workshop Coordinator , Boston University Organized departmental workshops on science journalism and how to craft compelling scientific talks	2017 - 2018
Lincoln School Science Night Activity Leader at STEM outreach event for K-8 students	March 2016
Dalhousie University Physics Fun and Discovery Days Activity Leader at physics outreach event for grade school students	May 2014

ADDITIONAL PUBLICATIONS

Chua, E.J. (2020, July 9). POV: BU should go fully online this fall. *BU Today*.

CONFERENCE PRESENTATIONS

- Chua, E.J.**, et al. (2022). *A writing program's collaborative mentoring initiative and its impact on pedagogy, equity, and inclusion*, Conference on College Composition and Communication, online.
- Chua, E.J.**, and Fulweiler, R.W. (2022). *Capturing the rapid response of sediments to anoxia with high temporal-resolution gas concentration measurements*, Ocean Sciences Meeting, online.
- Chua, E.J.**, Short, R.T., Cardenas-Valencia, A.M., Savidge, W., Algar, C.K., and Fulweiler, R.W. (2020). *Using mass spectrometry to measure dissolved gases in sandy sediment porewater*, Ocean Sciences Meeting, San Diego, CA.
- Chua, E.J.** (2020). *"There is no such thing as a failed experiment" and other lessons international research taught me*, Ocean Sciences Meeting, San Diego, CA.
- Chua, E.J.** (2019). *Tracking climate change with a novel underwater instrument*, Boston University Three Minute Thesis Competition, Boston, MA.
- Chua, E.J.** (2017). *Development of a porewater sampling underwater mass spectrometer*, invited seminar at Dalhousie University, Nova Scotia, Canada.
- Chua, E.J.**, Cardenas-Valencia, A.M., Savidge, W., Short, R.T., and Fulweiler, R.W. (2017). *Characterization of a porewater sampling device for in situ measurements in permeable marine sediments (oral)*, Coastal & Estuarine Research Federation 24th Biennial Conference, Providence, RI.
- Chua, E.J.**, Rodrigo, M., Savidge, W., Cardenas-Valencia, A.M., Short, R.T., and Fulweiler, R.W. (2017). *Determination of suitable sediments for deployment of a novel porewater sampling underwater mass spectrometer (poster)*, 11th Harsh-Environment Mass Spectrometry Workshop, Oxnard, CA.

- Chua, E.J.**, Savidge, W., Short, R.T., Cardenas-Valencia, A.M., and Fulweiler, R.W. (2016). *Development of a porewater sampling underwater mass spectrometer system (POSUMS) for gas measurements in permeable sediments (oral)*, New England Estuarine Research Society Fall Meeting, Block Island, RI.
- Chua, E.J.**, McMillan, J., and Hay, A. (2015). *Wave-current interactions in Digby Gut (poster)*, Conference of Dalhousie Oceanography Graduate Students, Dalhousie University, Halifax, NS.
- Chua, E.J.**, Michel, A.P.M., and Wankel, S.D. (2014). *Improving an inlet for underwater volatile analyses (poster)*, American Geophysical Union Fall Meeting, San Francisco, CA.
- Chua, E.J.**, and Kalb, J. (2013). *Nanostructured hybrid solar cells (oral)*, RISE Scholars Meeting, Heidelberg, Germany.

DEPARTMENTAL SEMINARS

- Chua, E.J.** and Fulweiler, R.W. (2022). *Capturing the rapid response of sediments to low-oxygen conditions with high temporal resolution gas concentration measurements (oral)*, Biogeoscience Symposium, Boston University, Boston, MA.
- Chua, E.J.**, Short, R.T., Cardenas-Valencia, A.M., Savidge, W., and Fulweiler, R.W. (2019). *Development and deployment of a novel underwater instrument for biogeochemical measurements (oral)*, Earth and Environment Dept., Boston University, Boston, MA.
- Chua, E.J.**, Savidge, W., Short, R.T., Cardenas-Valencia, A.M., and Fulweiler, R.W. (2018). *Investigation of biogeochemical cycling in permeable marine sediments using a novel porewater sampling underwater mass spectrometer (oral)*, Earth and Environment Dept., Boston University, Boston, MA.
- Chua, E.J.**, Savidge, W., Short, R.T., Cardenas-Valencia, A.M., and Fulweiler, R.W. (2017). *A review of the emerging field of underwater mass spectrometry (oral)*, Earth and Environment Dept., Boston University, Boston, MA.
- Chua, E.J.**, Savidge, W., Short, R.T., Cardenas-Valencia, A.M., and Fulweiler, R.W. (2017). *Development of a porewater sampling underwater mass spectrometer system (POSUMS) for gas measurements in permeable sediments (oral)*, Biogeoscience Symposium, Boston University, Boston, MA.
- Chua, E.J.**, McMillan, J., and Hay, A. (2015). *Wave-current interactions in Digby Gut (oral)*, Honors Physics Thesis Defense, Dalhousie University, Halifax, NS.
- Chua, E.J.**, Michel, A.P.M., and Wankel, S.D. (2014). *Improving an inlet for underwater volatile analysis (oral)*, Applied Ocean Physics and Engineering Seminar, Woods Hole Oceanographic Institution, Woods Hole, MA.
- Chua, E.J.**, and Kalb, J. (2013). *Controlled generation of conductive filaments in thin TiO₂ films for application in hybrid solar cells (oral)*, Physics Dept., University of Konstanz, Baden-Württemberg, Germany.

PROFESSIONAL SOCIETIES

Association for the Sciences of Limnology and Oceanography (ASLO)

SKILLS

Languages: English, French (intermediate)

Programming: MATLAB

Applications: LaTeX, QGIS, Inkscape