

CURRICULUM VITAE

Calendar Year 2025

K. Halimeda Kilbourne

Chesapeake Biological Laboratory

University of Maryland Center for Environmental Science

Certification

I have reviewed this Curriculum Vitae and here certify that it is a current and accurate statement of my professional record for this calendar year.

Signed: Kelly H. Kilbourne Date: 2/1/2026

CURRICULUM VITAE

K. Halimeda Kilbourne

Chesapeake Biological Laboratory

University of Maryland Center for Environmental Science
Solomons, MD 20688
Phone: 410-326-7205
Email: kilbourn@umces.edu

I. Education (chronological)

1998 B. A. Smith College, Northampton, MA. Geology
2003 M.Sc. College of Marine Science, University of South Florida, St. Petersburg, FL.
Geological Oceanography
2006 Ph.D. College of Marine Science, University of South Florida, St. Petersburg, FL.
Geological Oceanography.

II. Professional Background (chronological)

2006-2007 National Research Council Postdoctoral Fellow. National Ocean and
Atmospheric Administration, Earth Science Research Laboratory Climate
Analysis Branch, Boulder Colorado.
2007-2009 Visiting Assistant Professor McDaniel College, Westminster, Maryland.
Co-coordinator of Environmental Policy and Science major and minor
2008-2009.
2009-2016 Research Assistant Professor. University of Maryland Center for
Environmental Science, Chesapeake Biological Laboratory, Solomons,
Maryland.
2016-present Research Associate Professor. Chesapeake Biological Laboratory,
University of Maryland Center for Environmental Science, Solomons,
MD.

Awards and Special Recognition

2023-2024 Elkins Professorship for Academic Transformation.

III. Research [5 years only for each subsection] (chronological)

A. Areas of professional expertise

Paleoceanography, paleoclimatology, geochemistry, isotope geochemistry, coral reefs,
climate dynamics, Holocene climate variability.

B. Peer-Reviewed Publications

1. Papers (including books and chapters of books) in Refereed Journals

- Khare, A., Schijf, J. and Kilbourne, K.H., (2021) An ICP-AES method for routine high-precision measurement of seawater Sr/Ca ratios to validate coral paleothermometry calibrations. *Limnology and Oceanography Methods*. [UMCES contribution 5995].
- Weerabaddana, Mudith, K. L. DeLong, A. J. Wagner, D.W.Y. Loke, K. H. Kilbourne, N. Slowey, H-M. Hu, and C-C. Shen, Insights from barium variability in a *Siderastrea siderea* coral in the northwestern Gulf of Mexico, *Marine Pollution Bulletin* Volume 173, Part A, December 2021, 112930, <https://doi.org/10.1016/j.marpolbul.2021.112930>.
- Pereira, N.S., L.J. Clarke, C.M. Chiessi, K.H. Kilbourne, S. Crivellari, F.W. Cruz, J.L.P.S. Campos, T.-L. Yu, C.-C. Shen, R.K.P. Kikuchi, B.R. Pinheiro, G.O. Longo, A.N. Sial, T. Felis, (2022). Mid to late 20 the century freshening of the western tropical South Atlantic triggered by southward migration of the Intertropical Convergence Zone, *Palaeogeography, Palaeoclimatology, Palaeoecology*, 597, 111013, 10.1016/j.palaeo.2022.111013. [UMCES contribution 6176]
- Kilbourne, K. H., Wanamaker, A. D., Moffa-Sanchez, P., Reynolds, D. J., Little, C. M., Whitney, N. M., Mette, M., Rossby, T., Butler, P. G., Scourse, J., Gebbie, G., Goes, M., Jansen, M., Amrhein, D. E., Otto-Bliesner, B.L., Ortega, P., Moreno-Chamarro, E., Atlantic Meridional Overturning Circulation in recent centuries still uncertain, *Nature Geoscience*, **15**, 165–167 (2022). <https://doi.org/10.1038/s41561-022-00896-4> [UMCES Contribution 6062]
- Pereira, N.S., K.H. Kilbourne, R.K.P. Kikuchi, C.M. Chiessi, B.R. Pinheiro, M.M. Gregório, M.P. dos Santos, A.N. Sial, Sr/Ca-temperature calibration for the coral *Montastraea cavernosa*, *Journal of South American Earth Sciences*, 2023, 104524, 10.1016/j.jsames.2023.104524. [Contribution No. 6302]
- Khare, A., Hughes, H. P., Schijf, J., & Kilbourne, K. H. (2023). Apparently seasonal variations of the seawater Sr/Ca ratio across the Florida Keys Reef Tract. *Geochemistry, Geophysics, Geosystems*, 24, e2022GC010728. <https://doi.org/10.1029/2022GC010728> [UMCES contribution #6241]
- Kilbourne, K. H. A current take on past overturning, *Nature Geoscience*, 6, 286–287 (2023). <https://doi.org/10.1038/s41561-023-01158-7>, [Contribution No. 6281]
- Walter, R. et al., The CoralHydro2k Database: a global, actively curated compilation of coral $\delta^{18}\text{O}$ and Sr/Ca proxy records of tropical ocean hydrology and temperature for the Common Era, *Earth System Science Data Discussions*, <https://doi.org/10.5194/essd-2022-172>, 2023 [Contribution No. 6282]
- Pereira, N.S. C.M. Chiessi, S. Crivellari, K.H. Kilbourne, R.K.P. Kikuchi, B.P. Ferreira, R.J.A. Macêdo, M.C.M. dos Santos, M.de G. Pereira, L.S. Neves da Rocha, A.N. Sial, South Atlantic Multi-Site Calibration of Coral Oxygen Isotope Paleothermometer, *Geochemistry, Geophysics, Geosystems*, 25(8), e2023GC011395, 2024, [Contribution No 6391]
- Schijf, J., E.C. Hathorne, K.H. Kilbourne, T. Watanabe, Development and novel applications of geochemical proxies in marine and terrestrial carbonate records, *Frontiers in Marine Science* 11, 1515308, 2024 [Contribution No 6396].
- DeLong, Kristine L., Kilbourne, K. H., Guilderson, T.P., Wagner, A.J., Palmer, K., Slowey, N. and Hajdas, I., New and Old Coral Radiocarbon Records Revisited for

- the Subtropical and Tropical Atlantic Ocean, *Radiocarbon*, 2025;67(3):487-512. doi:10.1017/RDC.2025.5, [Contribution No. 6408]
- Kilbourne, K. H., J. Weil-Accardo, N. Feuillet, P.Deschamps, Y-Y. Xu, C-C Shen, H Sun, R. Halley, B.F. Atwater, (2025) Dating a Medieval Tsunami with Uranium-Series Techniques on Caribbean Corals, *Geophysical Research Letters*, 52, e2024GL114448. [Contribution No 4321]
- Hughes, H. P., Schijf, J., & Kilbourne, K. H. (2025). High-resolution annual cycles of the Sr/Ca ratio in Florida Bay seawater sampled with osmotic pumps. *Paleoceanography and Paleoclimatology*, 40, e2025PA005168. [Contribution No 6421]
- Lyubchich, Vyacheslav, K. Halimeda Kilbourne, and Geneviève Nesslage, Testing of Long-Term Granger Causality, *In: Environmental Modelling with Contemporary Statistics: Learning, Directionality, and Space-Time Dynamics*, Bekker, Andriëtte; Nagar, Priyanka; Johan Ferreira, Johan; Erasmus, Barend; Ramoelo, Abel; Eds., Chapman & Hall, 2026, **344p**. [Contribution No. 6452]

Publications in revision or final preparation

- Lyubchich, V. and Kilbourne, K.H., Historical Data: Quantifying Nonstationary Extreme Rainfall for Resilient Stormwater Design. Submitted to *Variance* July 2025. Needs re-submission.

2. Technical/Meeting Reports

- North, E., Place A., Kilbourne, K.H., Li, Y, Schijf, J., Hoover, R., Hunsicker, S., Lee, Y.-Y., Gray, M., Silsbe, G., Cornwell, J., Owens, M., Franchi, G., Gonsior, M., Heyes, A., Sanford, A., Vijayaragavan, K., Trommather, J., Sterling, D., Blair, J., Nardin, W., Khademishamami, M.A Global Defense for Coral Reef Wildlife: Creating Carbon-Negative Habitat: Year 3. Report to the Bailey Wildlife Foundation, January 2022
- North, E., Place A., Kilbourne, K.H., Li, Y, Schijf, J., Hoover, R., Hunsicker, S., Lee, Y.-Y., Gray, M., Silsbe, G., Cornwell, J., Owens, M., Franchi, G., Gonsior, M., Heyes, A., Sanford, A., Vijayaragavan, K., Trommather, J., Sterling, D., Blair, J., Nardin, W., Khademishamami, M.A Global Defense for Coral Reef Wildlife: Creating Carbon-Negative Habitat: Year 4. Report to the Bailey Wildlife Foundation, December 2022
- Boesch, D. F., Baecher, G. B., Boicourt, W. C., Cullather, R. I., Dangendorf, S., Henderson, G. R., Kilbourne, H. H., Kirwan, M. L., Kopp, R. E., Land, S., Li, M., McClure., K., Nardin, W., & Sweet, W. V. 2023. *Sea-level Rise Projections for Maryland 2023*. University of Maryland Center for Environmental Science, Cambridge, MD.
- Kilbourne, K.H. and S. Lyubchich Making our Community More Resilient: Accounting for Changing Rainfall in Calvert County, Report to the Calvert County Division of Public Works, 2024 [Ref No. UMCES CBL 2025-005].
- Kilbourne, H., Weil-Accardo, J., Feuillet, N., Deschamps, P., Xu, Y., Shen, C., Sun, H., Halley, R., Atwater, B., 2025. Uranium-series dates on Overwash Deposit Corals from Anegada, British Virgin Islands, Version 1.0. Interdisciplinary Earth Data Alliance (IEDA). <https://doi.org/10.60520/IEDA/113605>. Accessed 2025-01-21.

C. Contracts and Grants

1. Awarded

- Assessing the Extent and Causes of Fluctuations in the Seawater Sr/Ca Ratio to Improve Coral Paleothermometry Calibrations, National Science Foundation, Marine Geology and Geophysics Program, 2015-2020, \$522,353 +\$94,945 supplement with 2-year extension (Co-Principle Investigator, 17% time)
- A global defense for coral reef wildlife:creating carbon-negative habitat, The Bailey Wildlife Foundation, 2020, \$400,000 (Co-Principle Investigator, 12% time)
- Testing the relationship between NAO and Atlantic Multidecadal Variability over recent centuries with paleoclimate proxy data to improve decadal-scale climate predictions for fisheries management. Climate Variability and Predictability Program NOAA-Climate Program Office, 2020-2022, \$71,755 (Lead co-Principle Investigator, 25% FTE)
- A global defense for coral reef wildlife:creating carbon-negative habitat, The Bailey Wildlife Foundation, 2021, \$500,000 (Co-Principle Investigator, 12% time)
- Calibrating Coral Skeletal Chemistry to Ocean Temperatures to Better Understand Earth's Climate, Processes. American Philosophical Society Franklin Grant, 8/1/2021-8/31/2021, \$6000, (Principle Investigator, 0% time).
- A global defense for coral reef wildlife:creating carbon-negative habitat, The Bailey Wildlife Foundation, 2022, \$400,000 (Co-Principle Investigator, 12% time)
- Assessing the changing flooding risk in Calvert County, MD, Maryland Department of Natural Resources, 2/1/2023-6/30/2023, \$75,000 (coPI with Slava Lyubchich, 17% time)
- A global defense for coral reef wildlife: creating carbon-negative habitat, The Bailey Wildlife Foundation, 2023, \$400,000 (Co-Principle Investigator, 12% time)

D. Invited Seminars and Presentations

- Kilbourne, K.H. Sea Level Rise in Maryland, Presentation for Calvert Marine Museum Fossil Club, April 20, 2021.
- Kilbourne, K.H. Sea Level Rise in Maryland, Presentation for Maryland Department of Transportation, May, 2021
- Kilbourne, K.H. Climate Change 101: IPCC Assessment Report 6, Science for the Community, September, 2021
- Sayani, H, R Walter, T Felis, K Cobb, N Abram, A Atwood, A Arzey, KH Kilbourne..., The CoralHydro2k Database: a global compilation of coral $\delta^{18}\text{O}$ and Sr/Ca records for reconstructing tropical hydroclimate over the Common Era, AGU Fall Meeting Abstracts 2021, PP55C-0684
- Kilbourne, KH, V Lyubchich, N Goodkin, Heat convergence by AMOC or surface heat flux: Testing the causal relationship between the North Atlantic Oscillation and multidecadal sea surface temperature variability AGU Fall Meeting Abstracts 2021, OS15B-0979
- Weerabaddana, M, K DeLong, A Wagner, K Kilbourne, N Slowey How well do we understand the fate of barite used in oil drilling in the northern Gulf of Mexico? AGU Fall Meeting Abstracts 2021, OS25E-1050

Goes, M., N. Whitney, W. Liu, K. Kilbourne, A. Wanamaker, M. Mette. Reconstruction of the main modes of variability of the North Atlantic in the past 600 years using a collection of paleo proxy data. AGU Fall Meeting Abstracts 2021, OS15B-0980

Kilbourne, K.H. Climate Change 101. Secondary Teacher Professional Development, St. Mary's County. August, 2022.

Goodkin, A. Kannad, J.R. Yambing, M.R.K. ONG, K.H. Kilbourne, ..., Examination of the North Atlantic Oscillation and the Ability to Improve Marine Reconstructions Using Spatially Diverse Coral Records, AGU Fall Meeting Abstracts 2022, PP43A-04

Kilbourne, K.H., UMCES Research on Climate Change, Chesapeake Bay Commission, April, 2023.

Kilbourne, K.H. Projections of Climate Change: Changes In Precipitation Events, Montgomery County Water Quality Commission, June 2023

Kilbourne, K.H. Climate Change in Maryland and Your Gardens, St. Mary's Garden Club, September 2023.

Kilbourne, K.H., Mammoth Climates, Maryland Natural History Society Mammoth Speaker Series, October 2023.

Kilbourne, K.H., J. Schijf, H. Hughes, A. Vélez Galiano, Seawater Sr/Ca Variability in The Florida Keys Affects Coral Sr/Ca: Implications for Paleoclimate Reconstructions, AGU Fall Meeting Abstracts 2023 (1708), PP43E-1708

Kilbourne, K.H. Sea Level Rise in Maryland, Presentation for the Drum Point Club, May, 2024

Lord, A., P.R. Grothe, J. Oberlies, C.A. Morris, K.M. Cobb, K.H. Kilbourne, Using large skeletal architecture fossil corals to reconstruct central tropical Pacific climate, AGU24

Oberlies, J., P.R. Grothe, J. Cantor, A. Lord, S.J. Miller, K.M. Cobb, C.A. Morris, ..., Validating the geochemistry of large skeletal architectural corals from the central tropical Pacific as reliable climate archives, AGU24

North, E.W., A. Sanford, S. Hunsicker, G. Silsbe, J. Schijf, K.H. Kilbourne, Y. Li, ..., Using Microalgae to Capture Carbon Dioxide in Calcium Carbonate, 2024 Ocean Sciences Meeting.

Kilbourne, K. H. Sea Level Trends in Maryland – talk for Drum Point Club members, (May 2024)

Kilbourne, K. H. Corals as recorders of Climate Variability in the Caribbean, UMD Dept. of Atmospheric and Oceanic Science, November 2025.

E. Symposia Organized/Chaired for Professional Meetings

Session Chair, Reef environments and climate of the past: Can large-scale ocean and climate reconstructions from corals improve our understanding of past, present, and future extremes? 14th International Coral Reef Symposium (ICRS 2021), Online meeting.

Session Chair, Advances in Understanding Meridional Overturning Circulation from past to future: Insights from Multiple Approaches, American Geophysical Union Fall Meeting 2021, New Orleans.

Organizing Committee: International AMOC Science Meeting. US CLIVAR, UK-

RAPID, Woods Hole, Massachusetts, 2022.
 Session Chair, Reef environments and climate of the past: Can large-scale ocean and climate reconstructions from corals improve our understanding of past, present, and future extremes? 15th International Coral Reef Symposium (ICRS 2022), Bremen Germany
 Session Chair, Advances in Understanding Global Meridional Overturning Circulation from Past to Future: Insights from Multiple Approaches AGU Fall Meeting 2022, Chicago, IL.
 Session Chair, Advances in Understanding Global Meridional Overturning Circulation from Past to Future: Insights from Multiple Approaches, American Geophysical Union Fall Meeting 2023, San Francisco
 Session Chair Advances in Understanding Global Meridional Overturning Circulation from Past to Future: Insights from Multiple Approaches, American Geophysical Union Fall Meeting 2024, Washington DC.
 Session Chair Advances in Understanding Global Meridional Overturning Circulation from Past to Future: Insights from Multiple Approaches, American Geophysical Union Fall Meeting 2025, Washington DC.

F. Active Membership in Professional Societies

American Association for the Advancement of Science (AAAS)
 American Geophysical Union (AGU)
 Sigma Xi (University of Maryland Chapter)

IV. Teaching and Training (chronological)

A. University System of Maryland Courses Taught [5 years only]

Course #	Title	Institution	Semester	Enrollment	Credit hrs	co-instructor	No. Lectures
MEES 627	Geochemistry II	UMCP	Sp. 2021	4	3	S. Malkin, A. Paine, E Davidson	quarter
MEES 698Q	Climate Change	UMCP	Sp. 2021	5	3	L Cooper, J. Grebmeier, M. Cochrane	quarter
MEES 698R	Stable Isotopes	UMCP	Fall 2021	8	3	D. Nelson, L. Lapham and L. Cooper	quarter
MEES 609B	Prof Development in MEES	UMCP	Sp.2022	7	1	D. Nelson	half
MEES 698Q	Climate Change	UMCP	Sp. 2023	9	3	L Cooper, J. Grebmeier, M. Cochrane	quarter
MEES 698K	Biogeochemistry	UMCP	Sp. 2023	8	3	S. Malkin, A. Paine, E Davidson	quarter
MEES 698R	Stable Isotopes	UMCP	Fall 2023	7	3	D. Nelson, L. Lapham and L. Cooper	quarter
MEES 609B	Prof Development in MEES	UMCP	Sp.2024	12	1	D. Nelson	half

B. Graduate Students Supervised as Major Advisor

1. Degrees Complete

Yuanyuan Xu, M.S., Environmental Chemistry, Chesapeake Biological Laboratory, Late Medieval Climate in the Caribbean: Pacific vs. Atlantic control on interannual variability and mean state. Matriculation May 2014.

Agraj Khare, Ph.D., Environmental Chemistry, Chesapeake Biological Laboratory, Quantifying Seawater Strontium to Calcium Ratio Variability in the Florida Keys by ICP-AES. Matriculation May 2018.

Zorida Perez, MS, Earth and Ocean Sciences, Chesapeake Biological Laboratory, Improving age models for coral paleoclimate records for use improving our reconstructions of the climate system response to volcanic forcing. Fall 2016 to Fall 2020.

Hunter Hughes, MS, Earth and Ocean Sciences, Temporal and Spatial Variability of Seawater Strontium to Calcium Ratios on Coral Reefs: Implications for Coral Paleothermometry. Fall 2017 to Spring 2020.

3. Students Currently Supervised, None

4. Current Graduate Student Committee Memberships [current calendar yr only]

Colin Vissering Ph.D. MEES CBL

5. Research Internships Supervised [current calendar yr of CV only].

Maggie Nolan, Miocene paleoclimate from Pecten geochemistry in the Calvert Cliffs, Spring 2025

V. Outreach and Service (this year only)

A. Editorships/Panels/Peer Review

Panelist, U.S. National Science Foundation, P4Climate Program (Paleo Perspectives on Present and Projected Climate), March 2025

Panelist, Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) Priority Programme “Tropical Climate Variability and Coral Reefs. A Past to Future Perspective on Current Rates of Change at Ultra-High Resolution” (SPP 2299), September 2025

Manuscript Reviews for: Geophysical Research Letters, PLOS Climate, Paleoceanography and Paleoclimatology

B. Public Service

- ACLT Science Board member, (2023-present)

C. Federal/State/Local Government

- UMCES representative for the Faculty Advisory Council to Maryland Higher Education Commission (2014- present)

D. University System of Maryland

- Lead, MEES -Leading Learning Outcomes Assessment Committee, (2019-present)
- UMCES Graduate Faculty Council (present)
- MEES Program Committee (present)
- USM Elkins Professorship Selection Committee, panel review 2025

E. UMCES

- UMCES representative for the Faculty Advisory Council to Maryland Higher Education Commission, (2014- present)
- CBL Race to Zero Committee – creating a plan to make the campus carbon neutral, (2024-present)