

DANIEL C. McCORKLE
Geochemist, Paleoceanographer

February 2026

Scientist Emeritus
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Research Interests:

Ocean alkalinity enhancement – development and testing of methods and protocols
Ocean acidification and marine biomineralization – laboratory culturing studies and field studies of OA impacts on corals, shellfish, and benthic foraminifera; field studies of coastal acidification.
Benthic geochemistry - pore water and solid phase studies of organic matter decomposition, calcium carbonate dissolution, and nitrogen cycling.
Ocean paleochemistry – calibration studies of benthic foraminiferal shell chemistry, and isotopic and elemental estimates of changes in ocean circulation and the oceanic carbon cycle.
Land-sea groundwater interactions - chemical and isotopic studies of groundwater discharge into estuaries and the coastal ocean.

Education:

1987 Ph.D. (Chemical Oceanography) Stable carbon isotopes in deep sea pore waters: Modern geochemistry and paleoceanographic applications. University of Washington, advisor Steven Emerson
1983 M.Sc. (Chemical Oceanography) University of Washington, advisor Steven Emerson
1978 B.A. (Geology) Columbia University, New York NY

Professional Experience:

2023-present: Scientist Emeritus, Department of Geology and Geophysics, WHOI.
2019-2023: Program Director (IPA assignment), National Science Foundation.
2017: Adjunct (lecturer), Department of Earth and Environmental Sciences, Boston College.
2013-2017: Chair, Department of Geology and Geophysics, WHOI.
2012-2023: Senior Scientist, Department of Geology and Geophysics, WHOI.
2011-2013: Fellow, Coastal Ocean Institute, WHOI.
2004-2010: J. Seward Johnson Chair and Educational Coordinator, Department of Geology and Geophysics, WHOI.
1997-2012: Associate Scientist with Tenure, Department of Geology and Geophysics, WHOI.
1993-1997: Associate Scientist, Department of Geology and Geophysics, WHOI.
1989-1993: Assistant Scientist, Department of Geology and Geophysics, WHOI.
1987-1989: Postdoctoral Investigator, Department of Geology and Geophysics, WHOI.
1980-1987: Graduate student, School of Oceanography, University of Washington.
1978-1980: Research Assistant, Institute of Marine Science, University of Alaska.

Education Activities:**Teaching:**

- 2025 “Ecology and Geochemistry of Marine Carbon Dioxide Removal” course 7.431 in the MIT/WHOI Joint Program (with Lauren Mullineaux and Amala Mahadevan).
- 2017 “Introduction to Oceanography” course EESC115701, Boston College.
- 2000, 2002, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019 “Sediment Geochemistry” course 12.743 in the MIT/WHOI Joint Program (with G. Ravizza and K. Ruttenberg in 2000; with W. Martin 2002-2015; with A. Spivak 2013-2017; with A. Wang and M. Long 2019).
- 1999 “Sediment Geochemistry Seminar” course 12.752 in the MIT/WHOI Joint Program (with G. Ravizza and K. Ruttenberg).
- 1998, 1999, 2000: “Marine Geology and Geophysics” course 12.710 in the MIT/WHOI Joint Program; paleoceanography section (w. M. Raymo (1998) and J. McManus (2000)).
- 1994, 1995, 1996, 1997: “Marine Geology and Geophysics Student Seminar”, course 12.751 in the MIT/WHOI Joint Program (with H. Schouten).
- 1992: “Paleoceanography”, course 12.740 in the MIT/WHOI Joint Program.
- 1989: “Marine Sediments”, course 12.701 in the MIT/WHOI Joint Program in Oceanography/Oceanographic Engineering.

Advising:

Post-doctoral advisor to:

- Matthew Long (co-advised with Matt Charette and Bill Martin)
- Kathryn Shamberger (co-advised with Anne Cohen)
- Anna McIntyre-Wressnig (co-advised with Joan Bernhard)
- Justin Ries (co-advised with Anne Cohen)
- Helena Filipsson (co-advised with Joan Bernhard)
- Ann Mulligan

Dissertation advisor to:

- Elizabeth Drenkard, G&G (PhD 2014; co-advised with Anne Cohen and Kris Karnauskas)
- Meredith White, Biology (PhD 2013; co-advised with Lauren Mullineaux)
- Michael Holcomb, G&G (PhD 2009; co-advised with Anne Cohen)
- Emilie Slaby, MC&G (no degree; co-advised with Harry Hemond (MIT))
- Carolyn Gramling, G&G (PhD 2003)
- Daniel M. Sigman, G&G (PhD 1997; co-advised with Mark Altabet)

Generals project advisor to: Sara Lincoln (MIT), Sharon Hoffmann, Dana Stuart.

Additional Ph.D. supervisory/examination committee of: Mallory Ringham, Sophie Chu, Hannah Barkley, Whitney Bernstein, Camilo Ponton, Evelyn Mervine, Hunter Oates, Sharon Hoffmann, Mea Cook, Andrew Moy (University of Tasmania), Victor Zabielski (Brown Univ.), Carolyn Tuit, Matthew Reuer, Kirsten Laarkamp, Thomas Marchitto, Chris Wiedeman.

Summer Research advisor to: *Graduate students* – Nina Bednarsek (British Antarctic Survey), Noel Gurwick (Cornell), Gabriella Bartholini (ISEC-CNR, Italy), Angela Holder and Barbara Gainswin (both University College London), and Hedy Edmonds, Nathalie Weicker and Jeff

Berry, (all MC&G students, H.E. and J.B. with Bill Martin). *Undergraduates* – Ashley Davis (Univ. S. Carolina; w. A. Cohen), Colette Kelly (Barnard College), Morgan Bennett-Smith (Occidental College, with S. Lindell (MBL)), Cailan Sugano (UCSB), Jillian Lyles (Cornell U.), Barbara Ramon (Cal State – Dominguez Hills), Melissa Pinard (Morgan State, w. A. Cohen), Emilia Sogin (Brown, w. A. Cohen), Alexandra Pogue (Whitman, w. A. Cohen), Prae Supcharoen (Bowdoin), David Mortimer (Bowdoin), Courtney Fritz (U. Michigan), Adam Cox (Duke), Kim Krouse (U. Delaware), Zack Johnson (MIT), John Anthony (Hamilton), and Danny Sigman (Stanford).

Other Guest Students: Conrad Schloer (Oberlin), Gail Schwieterman (Oberlin), Leonard Schloer (Pitzer), Hana Keys (Oberlin), and Alyson Bodendorf (College of Charleston).

Submitted (* denotes student or post-doc first author):

Subhas, A.V., M.S. Hashim, M.H. Long, **D.C. McCorkle**, W.R. Gray, W.M. Berelson, J.F. Adkins Enhanced solubility of planktonic foraminiferal calcite in seawater. Submitted to Scientific Advances, June, 2024.

*Marx, L., J. E. Rheuban, **D. C. McCorkle**, C. Murray, Y. Guo, A. Z. Wang, A. Michel, K. Chen, H. H. Kim, A. V. Subhas. Development of the ecological activity index as an integrative ecosystem assessment and monitoring asset for ocean alkalinity enhancement. Submitted to Nature Sustainability.

Rheuban, J.E., H. H. Kim, K. Chen, I. D. Lima, **D. C. McCorkle**, A. P. M. Michel, Z. A. Wang, A. V. Subhas. Carbonate system site selection characteristics for Ocean Alkalinity Enhancement in the US Northeast Shelf and Slope. Submitted to JGR Biogeosciences.

Subhas, A.V., J.E. Rheuban, K. Kostel, L. Marx, K. Morkeski, M.G. Hayden, T. Lanagan, C. Dean, M. Burkitt-Gray, Y. Guo, **D.C. McCorkle**, C.S. Murray, Z.A. Wang, A.P.M. Michel, H.H. Kim, K. Chen, J.A. Yager, J. Collins, M. Cape, E. Martin, K. Kleisner, J.G. Mason. Effective framings and open questions from community engagement for an Ocean Alkalinity Enhancement field trial. Submitted to ICES Journal of Marine Science.

*Murray, C.S., L. Marx, N. Aluru, A. Wang, K. Chen, H.H. Kim, A. Michel, **D.C. McCorkle**, J. E. Rheuban, A.V. Suhbas. The effects of elevated seawater pH and total alkalinity following dosing of sodium hydroxide in *Calanus finmarchicus*. Submitted to ICES Journal of Marine Science.

Publications (* denotes student or post-doc first author):

84. *Hashim, M. S., L. Marx, F. Klein, C. Dean, E. Burdige, M. Hayden, **D. C. McCorkle**, and A. V. Subhas. Mineral Formation during Shipboard Ocean Alkalinity Enhancement Experiments in the North Atlantic. Submitted to Geochim. Cosmochim. Acta, Feb 2025.

83. Subhas, A.V., J.E. Rheuban, Z.A. Wang, **D.C. McCorkle**, A.P.M. Michel, L. Marx, C.L. Dean, K. Morkeski, M.G. Hayden, M. Burkitt-Gray, F. Elder, Y. Guo, H.H. Kim, K.Chen (2025) A

- tracer study for the development of in-water monitoring, reporting, and verification (MRV) of ship-based ocean alkalinity enhancement. *Biogeosciences*, vol. 22, iss. 19, pp. 5511-5534. <https://doi.org/10.5194/bg-22-5511-2025>.
82. *Guo, Y., K. Chen, H.H. Kim, A.V. Subhas, J.E. Rheuban, A.Z. Wang, **D.C. McCorkle**, A. Michel (2025) Site selection for ocean alkalinity enhancement informed by passive tracer simulations. *Nature Communications Earth & Environment* 6, 535 <https://doi.org/10.1038/s43247-025-02480-1>.
81. Lentz, S. J., A. L. Cohen, N. Mollica, M. Fox, W. G. Zhang, P. Poemnamthip, **D C. McCorkle** (2025) Impact of El Niño-Southern Oscillation on the Alkalinity and Salinity of a Coral Reef Lagoon in the Equatorial Pacific - Observations and a Model. *Journal of Geophysical Research: Oceans*, 130, e2024JC021843. <https://doi.org/10.1029/2024JC021843>
80. *Reyes-Macaya, D., B. Hoogakker, G. Martínez-Méndez, P. J. Llanillo, P. Grasse, M. Mohtadi, A. Mix, M. J. Leng, U. Struck, **D. C. McCorkle**, M. Troncoso, E. M. Gayo, C. B. Lange, L. Farias, W. Carhuapoma, M. Graco, M. Cornejo-D'Ottone, R. De Pol Holz, C. Fernandez, D. Narvaez, C. A. Vargas, F. García-Araya, and D. Hebbeln (2022) Isotopic Characterization of Water Masses in the Southeast Pacific Region: Paleoceanographic Implications. *J. Geophys. Res. – Oceans*, 127, e2021JC017525. <https://doi.org/10.1029/2021JC017525>
79. *Chen, S.S., O. Marchal, P.E. Lerner, **D.C. McCorkle**, M.M. Rutgers van der Loeff (2021) On the cycling of ^{231}Pa and ^{230}Th in benthic nepheloid layers. *Deep-Sea Research I* (177), <https://doi.org/10.1016/j.dsr.2021.103627>.
78. *Gassett, P. R., K. O'Brien-Clayton, C. Bastidas, J.E. Rheuban, C.W. Hunt, E. Turner, M. Liebman, E. Silva, A.R. Pimenta, J. Grear, J. Motyka, **D.C. McCorkle**, Stancioff, Esperanza; Brady, Damian, C.; and Strong, Aaron, L. (2021) Community science for coastal acidification monitoring and research. *Coastal Management*, February 2021. DOI: 10.1080/08920753.2021.1947131
77. Bernhard, J.M., J.C. Wit, V.R. Starczak, D.J. Beaudoin, W.G. Phalen, and **D.C. McCorkle** (2021) Impacts of multiple stressors on a benthic foraminiferal community: A long-term experiment assessing response to ocean acidification, hypoxia and warming. *Frontiers in Marine Science*, <https://doi.org/10.3389/fmars.2021.643339>.
76. Rheuban, J. E., P.R. Gassett, **D.C. McCorkle**, C.W. Hunt, M.L. Liebman, C. Bastidas, K. O'Brien-Clayton, A.R. Pimenta, E. Silva, P. Vlahos, R.J. Woosley, J. Ries, C.M. Liberti, J. Grear, J. Salisbury, D.C. Brady, K. Guay, M. LaVigne, A.L. Strong, E. Stancioff, and E. Turner (2020) Synoptic Assessment of Coastal Total Alkalinity through Community Science, *Environmental Research Letters*, 16(2), <https://doi.org/10.1088/1748-9326/abcb39> .
75. *Baldry, K., V. Saderne, **D.C. McCorkle**, J.H. Churchill, S. Agusti, and C.M. Duarte (2020) Anomalies in the carbonate system of Red Sea coastal habitats. *Biogeosciences* 17, 423–439. <https://doi.org/10.5194/bg-17-423-2020>.
74. Subhas, A.V., **D.C. McCorkle**, A. Quizon, A.P. McNichol, and M.H. Long (2019) Selective Preservation of Coccolith Calcite in Ontong-Java Plateau Sediments. *Paleoceanography and Paleoclimatology*, 34, 2141– 2157. <https://doi.org/10.1029/2019PA003731>.

73. Rheuban, J.E., S.C. Doney, **D.C. McCorkle**, and R.W. Jakuba (2019) Quantification of the effects of nutrient enrichment and freshwater mixing on coastal ocean acidification. *Journal of Geophysical Research: Oceans*, 124. <https://doi.org/10.1029/2019JC015556>.
72. Long, M.H., J.E. Rheuban, **D.C. McCorkle**, D.J. Burdige, and R.C. Zimmerman (2019) Closing the oxygen mass balance in shallow coastal ecosystems. *Limnology and Oceanography*, 64, 2694–2708. DOI: 10.1002/lno.11248.
71. Meyer-Kaiser, K.S., E.P. Houlihan, J.D. Wheeler, **D.C. McCorkle**, and L.S. Mullineaux (2019) Behavioral response of eastern oyster (*Crassostrea virginica*) larvae to chemical settlement cue is not impaired by low pH. *Marine Ecology Progress Series*, Vol. 623: 13–24, <https://doi.org/10.3354/meps13014>.
70. **McCorkle, D.C.** and A.P. McNichol, The stable carbon isotopic composition of the oceans. Elsevier Encyclopedia of Ocean Sciences, Third edition, accepted, July 2018.
69. *Drenkard, E., A. Cohen, **D. McCorkle**, S. de Putron, V. Starczak, and D. Repeta (2018) Juveniles of the Atlantic coral, *Favia fragum* (Esper, 1797) do not invest energy to maintain calcification under ocean acidification. *Journal of Experimental Marine Biology and Ecology*, 507, 61-69, doi: 10.1016/j.jembe.2018.07.007.
68. *Barkley, H.C., A.L. Cohen, **D.C. McCorkle**, and Y. Golbuu (2017), Mechanisms and thresholds for pH tolerance in Palau corals. *Journal of Experimental Marine Biology and Ecology*, 489, 7-14.
67. Filipsson, H.L., **D.C. McCorkle**, A. Mackensen, J.M. Bernhard, L.S. Andersson, L.-J. Naustvoll, A.M. Caballero-Alfonso, K. Nordberg, and D.S. Danielssen (2017) Seasonal variability of stable carbon isotopes ($\delta^{13}\text{C}(\text{DIC})$) in the Skagerrak and the Baltic Sea: Distinguishing between mixing and biological productivity. *Palaeogeog., Palaeoclimatol., Palaeoecol.*, 483C, pp. 15-30. doi: 10.1016/j.palaeo.2016.11.031.
66. *Liu, Q., C.F. Breier, M.A. Charette, P.B. Henderson, **D.C. McCorkle**, W. Martin, and M. Dai (2017) Carbonate system biogeochemistry in a subterranean estuary – Waquoit Bay, USA. *Geochimica et Cosmochimica Acta*, 203, 422-439.
65. *Bernstein, W.N., K.A. Huguen, C. Langdon, **D.C. McCorkle** and S.J. Lentz (2016) Environmental Controls on Daytime Net Community Calcification on a Red Sea Reef Flat. *Coral Reefs* 35.2: 697–711, DOI 10.1007/s00338-015-1396-6
64. *Wit, J., M. Davis, **D.C. McCorkle**, and J.M. Bernhard (2016) A short-term survival experiment assessing compounded impacts of ocean acidification and hypoxia on the benthic foraminifer *Globobulimina turgida*. *Journal of Foraminiferal Research*, 46(1), 25-33.
63. Rheuban, J.E., S. Williamson, J.E. Costa, D.M. Glover, R.W. Jakuba, **D.C. McCorkle**, C. Neill, T. Williams, and S.C. Doney (2016) Spatial and temporal trends in summertime climate and water quality indicators in the coastal embayments of Buzzards Bay, Massachusetts. *Biogeosciences*, 13, 253-265, doi: 10.5194/bg-13-253-2016.
62. *Long M.H., M.A. Charette, W.R. Martin, and **D.C. McCorkle** (2015) Oxygen metabolism and pH in coastal ecosystems: Eddy Covariance Hydrogen ion and Oxygen Exchange System (ECHOES). *Limnology and Oceanography: Methods*, doi: 10.1002/lom3.10038.
61. Churchill, J., A. Bower, **D. McCorkle** and Y. Abualnaja (2014) The transport of nutrient-rich Indian Ocean water through the Red Sea and into coastal reef systems. *Journal of Marine Research*, 72, 165-181.

60. Pfister, C.A., A.J. Esbaugh, C.A. Frieder, H. Baumann, E.E. Bockmon, M.M. White, B.R. Carter, H.M. Benway, C.A. Blanchette, E. Carrington, J.B. McClintock, **D.C. McCorkle**, W.R. McGillis, T.A. Mooney, and P. Ziveri (2014) Detecting the Unexpected: a Research Framework for Ocean Acidification. *Environmental Science and Technology*, 48, 9982-9994. dx.doi.org/10.1021/es501936p
59. *McIntyre-Wressnig, A. J.M. Bernhard, J.C. Wit, and **D.C. McCorkle** (2014) Ocean acidification not likely to affect the survival and fitness of two temperate benthic foraminiferal species: Results from culture experiments. *Journal of Foraminiferal Research*, 44(4), 341–351.
58. *Liu, Q., M.A. Charette, P.B. Henderson, **D.C. McCorkle**, W. Martin, and M. Dai. (2014) Effect of submarine groundwater discharge on the coastal ocean inorganic carbon cycle. *Limnology and Oceanography*, **59**, 1529-1554.
57. *Shamberger, K. E. F., A. L. Cohen, Y. Golbuu, **D.C. McCorkle**, S. J. Lentz, and H. C. Barkley (2014), Diverse coral communities in naturally acidified waters of a Western Pacific Reef, *Geophys. Res. Lett.*, 41, doi:10.1002/2013GL058489.
56. *White, M.M., L.S. Mullineaux, **D.C. McCorkle**, and A.L. Cohen (2014) Elevated pCO₂ during fertilization of the bay scallop *Argopecten irradians* reduces larval survival but not shell size. *Marine Ecology Progress Series*, vol. 498, p. 173-186, doi: 10.3354/meps10621.
55. *Kaplan, M.B., T.A. Mooney, **D.C. McCorkle** and A.L. Cohen (2013) Adverse effects of elevated CO₂ concentrations on squid (*Doryteuthis pealeii*) development and early life. *PLoS One*. 2013; 8(5): e63714.
54. *White, M.M., **D.C. McCorkle**, L.S. Mullineaux, and A.L. Cohen (2013) Early exposure of bay scallops (*Argopecten irradians*) to high CO₂ causes initial decrease in shell growth resulting in persistent smaller larval size. *PLoS ONE* 8(4): e61065.doi:10.1371/journal.pone.0061065.
53. *Drenkard, E., A.L. Cohen, **D.C. McCorkle**, S.J. de Putron, V. Starczak, and A. Zicht (2013) Calcification by Juvenile Corals under Heterotrophy and Elevated CO₂, *Coral Reefs*, 10.1007/s00338-013-1021-5.
52. *Holcomb, M., A.L. Cohen, and **D.C. McCorkle** (2013) A comparison of methods for marking growth in scleractinian corals. *Journal of Experimental Marine Biology and Ecology*, 440, 126-131.
51. *Bednaršek, N., G.A. Tarling, D.C.E. Bakker, S. Fielding, A.L. Cohen, A. Kuzirian, **D.C. McCorkle**, B. Lézé, and R. Montagna (2012) Description and quantification of pteropod shell dissolution: A sensitive bioindicator of ocean acidification. *Global Change Biology*, 18, 2378–2388, doi: 10.1111/j.1365-2486.2012.02668.x
50. *McIntyre-Wressnig, A. J.M. Bernhard, **D.C. McCorkle** and P. Hallock (2012) Non-lethal effects of ocean acidification on two symbiont-bearing benthic foraminiferal species. *Marine Ecology Progress Series*, DOI 10.3354/meps0998.
49. *Holcomb, M., A.L. Cohen, and **D.C. McCorkle** (2012) An investigation of the calcification response of the scleractinian coral *Astrangia poculata* to elevated pCO₂ and the effects of nutrients, zooxanthellae and gender. *Biogeosciences*, 9, 29–39, doi:10.5194/bg-9-29-2012.

48. de Putron, S.J., A.L. Cohen, **D.C. McCorkle**, and A. Dillon (2011) The impact of seawater saturation state and bicarbonate ion concentration on coral calcification. *Coral Reefs*, 30, 321-328, DOI 10.1007/s00338-010-0697-z.
47. *Cantin, N.E., A.L. Cohen, K.B. Karnauskas, A.M. Tarrant, and **D.C. McCorkle** (2010) Ocean warming slows coral growth in the central Red Sea. *Science*, Vol. 329. no. 5989, pp. 322 - 325 DOI: [10.1126/science.1190182](https://doi.org/10.1126/science.1190182)
46. *Ries, J.B., A.L. Cohen, and **D.C. McCorkle** (2010) A nonlinear calcification response to $p\text{CO}_2$ -induced ocean acidification by the coral *Oculina arbuscula*, *Coral Reefs*, DOI: 10.1007/s00338-0100-0632-3.
45. *Filipsson, H.L., J.M. Bernhard, S.A. Lincoln, and **D.C. McCorkle** (2010) A culture-based calibration of benthic foraminiferal paleotemperature proxies: $\delta^{18}\text{O}$ and Mg/Ca results. *Biogeosciences*, v.7, 1335-1347. DOI: 10.519/bg-7-1335-2010.
44. *Holcomb M., **D.C. McCorkle**, and A.L. Cohen (2010) Long-term effects of nutrient and CO_2 enrichment on the temperate coral *Astrangia poculata* (Ellis and Solander, 1786), *Journal of Experimental Marine Biology and Ecology*, doi:[10.1016/j.jembe.2010.02.007](https://doi.org/10.1016/j.jembe.2010.02.007).
43. *Ries, J.B., A.L. Cohen, and **D.C. McCorkle** (2009) Marine calcifiers exhibit mixed responses to CO_2 -induced ocean acidification. *Geology*, v.37, n.12, pp.1131-1134.
42. Cohen, A. L., **D. C. McCorkle**, S. de Putron, G. A. Gaetani, and K. A. Rose (2009), Morphological and compositional changes in the skeletons of new coral recruits reared in acidified seawater: Insights into the biomineralization response to ocean acidification, *Geochim. Geophys. Geosyst.*, 10, Q07005, doi:[10.1029/2009GC002411](https://doi.org/10.1029/2009GC002411).
41. **McCorkle, D. C.**, J. M. Bernhard, C. J. Hintz, J. K. Blanks, G. T. Chandler, T. J. Shaw (2008) The Carbon and Oxygen Stable Isotopic Composition of Cultured Benthic Foraminifera, in W.E.N. Austin and R.H. James (eds) *Biogeochemical Controls on Palaeoceanographic Environmental Proxies*, Geological Society, London, Special Publications, vol. 303, p 135-154.
40. *Gurwick, N.P., **D.C. McCorkle**, P.M Groffman, A. J. Gold, D.Q. Kellogg, and P. Seitz-Rundlett, Mineralization of Ancient Carbon in the Subsurface of Riparian Forests (2008) *Journal of Geophysical Research*, v113, G02021, doi:[10.1029/2007JG000482](https://doi.org/10.1029/2007JG000482).
39. Lehmann M. F., D. M. Sigman, **D. C. McCorkle**, J. Granger, S. Hoffmann, G. Cane, and B. G. Brunelle (2007) The distribution of nitrate $^{15}\text{N}/^{14}\text{N}$ in marine sediments and the impact of benthic nitrogen loss on the isotopic composition of oceanic nitrate. *Geochimica Cosmochimica Acta*, 71, 5384-5404, doi:[10.1016/j.gca.2007.07.025](https://doi.org/10.1016/j.gca.2007.07.025).
38. Marchitto, T.M., S.P. Bryan, W.B. Curry, and **D.C. McCorkle** (2007) Mg/Ca temperature calibration for the benthic foraminifer *Cibicides pachyderma*. *Paleoceanography*, 22(1) PA1203, [10.1029/2006PA001287](https://doi.org/10.1029/2006PA001287).
37. *Hintz, C.J., T.J. Shaw, J.M. Bernhard, G.T. Chandler, **D.C. McCorkle**, J.K. Blanks (2006b) Trace/minor element:calcium ratios in cultured benthic foraminifera, Part II: Ontogenetic variation. *Geochimica et Cosmochimica Acta*, 70, 1964-1976, doi:[10.1016/j.gca.2005.12.019](https://doi.org/10.1016/j.gca.2005.12.019).
36. *Hintz, C.J., T.J. Shaw, G.T. Chandler, J.M. Bernhard, **D.C. McCorkle**, J.K. Blanks (2006a) Trace/minor element:calcium ratios in cultured benthic foraminifera, Part I: Interspecies and inter-individual variability. *Geochimica et Cosmochimica Acta*, 70, 1952-1963, doi:[10.1016/j.gca.2005.12.018](https://doi.org/10.1016/j.gca.2005.12.018).

35. *Lehmann M. F., D. M. Sigman, **D. C. McCorkle**, B. G. Brunelle, S. Hoffmann, M. Kienast, G. Cane, J. Clement (2005), Origin of the deep Bering Sea nitrate deficit: Constraints from the nitrogen and oxygen isotopic composition of water column nitrate and benthic nitrate fluxes, *Global Biogeochem. Cycles*, 19, GB4005, doi:10.1029/2005GB002508.
34. Gehlen, M., F. Bassinot, L. Chou, and **D. McCorkle** (2005) Reassessing the dissolution of marine carbonates – II. Reaction kinetics. *Deep-Sea Research I*, 52, 1461-1476, doi:10.1016/j.dsr.2005.03.011.
33. Gehlen, M., F. Bassinot, L. Chou, and **D. McCorkle** (2005) Reassessing the dissolution of marine carbonates – I. Solubility. *Deep-Sea Research I*, 52, 1445-1460, doi:10.1016/j.dsr.2005.03.010.
32. *Hintz, C.J., G.T. Chandler, J.M. Bernhard, **D.C. McCorkle**, S.M. Havach, J.K. Blanks, T.J. Shaw (2004) A physicochemically-constrained seawater culturing system for production of viable, calcite-producing, paleoceanographically-important benthic foraminifera. *Limnology & Oceanography Methods*, 2: 160-170.
31. *Gramling, C.M., **D.C. McCorkle**, A.E. Mulligan, and T.L. Woods (2003) A carbon isotope method to quantify groundwater discharge at the land-sea interface. *Limnology and Oceanography*, 48(3), 957-970.
30. Sigman, D.M., R. Robinson, A.N. Knapp, A. van Geen, **D.C. McCorkle**, J.A. Brandes, and R.C. Thunell, (2003) Distinguishing between water column and sedimentary denitrification in the Santa Barbara Basin using the stable isotopes of nitrate. *Geochem. Geophys. Geosyst.*, 4(5), 1040, doi:10.1029/2002GC000384.
29. Corliss, B.H., **D.C. McCorkle**, and D.M. Higdon (2002) Seasonal changes of the carbon isotopic composition of deep-sea benthic foraminifera. *Paleoceanography*, 17(3), 10.1029/2001PA000664.
28. Matsumoto, K., W.S. Broecker, E. Clark, **D.C. McCorkle**, W.R. Martin, and I. Hajdas (2001) Can deep ocean carbonate preservation history inferred from atmospheric pCO₂ account for ¹⁴C and %CaCO₃ profiles on the Ontong-Java Plateau? *Earth Planet. Sci. Lett.*, 192, 319-329.
27. Sigman, D.M., M.A. Altabet, **D.C. McCorkle**, R. Francois, and G. Fischer (2000) The δ¹⁵N of nitrate in the Southern Ocean: Nitrogen cycling and circulation in the ocean interior. *Jour. Geophys. Res.*, 105(C8), 19599-19614.
26. Veeh, H.H., **D.C. McCorkle**, and D.T. Heggie (2000) Glacial/Interglacial variations of sedimentation on the West Australian continental margin: constraints from excess ²³⁰Th. *Marine Geology*, v. 166, pp. 11-30.
25. Martin, W.R., A.P. McNichol, and **D.C. McCorkle** (2000) The radiocarbon age of calcite dissolving at the sea floor: Estimates from pore water data. *Geochim. Cosmochim. Acta*, 64(8), 1391-1404.
24. **McCorkle, D.C.**, H.H. Veeh, and D.T. Heggie (1999) Glacial-Interglacial paleoceanography from Australian margin sediments: northwest Australian margin and Great Australian Bight. *AGSO Journal of Australian Geology and Geophysics*, v. 17(5/6), pp. 145-157.
23. Higgins, S.M., W.S. Broecker, R. Anderson, **D.C. McCorkle**, and D. Timothy (1999) Enhanced sedimentation along the Equator in the Western Pacific. *Geophys. Res. Lett.*, 26(23), 3489-3492.

22. Broecker, W.S., E. Clark, **D.C. McCorkle**, T.-S. Peng, I. Hajdas, and G. Bonani (1999b) Evidence for a reduction in the carbonate ion content of the deep sea during the course of the Holocene. *Paleoceanography*, 14(6), 744-752.
21. Kuwabara, J.S., A. van Geen, **D.C. McCorkle**, and J.M. Bernhard (1999) Dissolved sulfide distributions in the water column and sediment porewaters of Santa Barbara Basin. . *Cosmochim. Acta*, v. 63(15), pp. 2199-2209.
20. Sigman, D.M., M.A. Altabet, R. Francois, **D.C. McCorkle**, and J.-F. Gaillard (1999) The isotopic composition of diatom-bound nitrogen in Southern Ocean sediments. *Paleoceanography*, 14(2), pp. 118-134.
19. Broecker, W.S., E. Clark, **D.C. McCorkle**, I. Hajdas, and G. Bonani (1999a) Core-top ^{14}C ages as a function of latitude and water depth on the Ontong-Java Plateau. *Paleoceanography*, v. 14(1), pp. 13-22.
18. McManus, J., W.M. Berelson, G.P. Klinkhammer, K. Johnson, K. Coale, R. Anderson, N. Kumar, D.J. Burdige, D.E. Hammond, H.J. Brumsack, **D.C. McCorkle**, and A. Rushdi (1998) Geochemistry of barium in marine sediments: Implications for its use as a paleoproxy. *Geochim. Cosmochim. Acta*, v. 62(21/22), pp. 3453-3473.
17. *Sigman, D.M., **D.C. McCorkle**, and W.R. Martin (1998) The calcite lysocline as a constraint on glacial-interglacial low latitude production changes. *Global Biogeochemical Cycles*, v. 12(3), pp.409-427.
16. **McCorkle, D.C.**, D.T. Heggie, and H.H. Veeh. (1998) Glacial and Holocene stable isotope distributions in the southeastern Indian Ocean. *Paleoceanography*, v. 13(1), pp. 20-34.
15. Jahnke, R.A., D.B. Craven, **D.C. McCorkle**, and C.E. Reimers (1997) CaCO_3 dissolution in California continental margin sediments: The influence of organic matter remineralization. *Geochimica et Cosmochimica Acta*, v. 61, n. 17, pp. 3587-3604.
14. *Sigman, D.M., M.A. Altabet, R. Michener, **D.C. McCorkle**, B. Fry, and R.M. Holmes (1997) Natural abundance-level measurement of the nitrogen isotopic composition of oceanic nitrate: an adaptation of the ammonia diffusion method. *Marine Chemistry*, v. 57, p. 227-242.
13. **McCorkle, D.C.**, B.H. Corliss, and C.A. Farnham (1997) Vertical distributions and stable isotopic compositions of live (stained) benthic foraminifera from the North Carolina and California continental margins. *Deep-Sea Research*, v. 44(6), p. 983-1024.
12. **McCorkle, D.C.**, P.A. Martin, D.W. Lea, and G.P. Klinkhammer (1995) Evidence of a dissolution effect on benthic foraminiferal shell chemistry: $\delta^{13}\text{C}$, Cd/Ca, Ba/Ca, and Sr/Ca results from the Ontong Java Plateau. *Paleoceanography*, v. 10, n. 4, p. 699-714.
11. van Geen, A., **D.C. McCorkle**, and G.P. Klinkhammer (1995). Sensitivity of the phosphate-cadmium-carbon isotope relation in the ocean to cadmium removal by suboxic sediments. *Paleoceanography*, v. 10, n. 2, p. 159.
10. **McCorkle, D.C.**, H.H. Veeh, and D.T. Heggie (1994). Glacial-Holocene paleoproductivity off Western Australia: A comparison of proxy records, in R. Zahn, T. Pedersen, M. Kaminiski, and L. Labeyrie eds., "Carbon Cycling in the Glacial Ocean: Constraints on the Ocean's Role in Global Change", NATO ASI Series, Vol. I 17, Springer-Verlag, p. 443.
9. **McCorkle, D.C.** and L.D. Keigwin (1994). Depth profiles of $\delta^{13}\text{C}$ in bottom water and core-top *C. wuellerstorfi* on the Ontong-Java Plateau and Emperor Seamounts. *Paleoceanography*, v. 9, n. 2, p. 197.

8. Francois, R., M.A. Altabet, R. Goreicke, **D.C. McCorkle**, C. Brunet, and A. Poisson (1993) Changes in the $\delta^{13}\text{C}$ of surface water particulate organic matter across the subtropical convergence in the southwest Indian Ocean. *Global Biogeochemical Cycles*, 7(3), 627-644.
7. Martin, W.R. and **D.C. McCorkle** (1993). Dissolved organic carbon concentrations in marine pore waters determined by high-temperature oxidation. *Limnology and Oceanography*, v. 38, n. 7, p. 1464.
6. Reimers, C.E., R.A. Jahnke, and **D.C. McCorkle** (1992) Carbon fluxes and burial rates over the continental slope and rise off Central California with implications for the global carbon cycle. *Global Biogeochemical Cycles*, v. 6, n. 2, p. 199.
5. **McCorkle, D.C.** and G.P. Klinkhammer (1991). Porewater cadmium geochemistry and the porewater cadmium: $\delta^{13}\text{C}$ relationship. *Geochim. Cosmochim. Acta*, v. 55, p. 161.
4. **McCorkle, D.C.**, L.D. Keigwin, B.H. Corliss, and S.R. Emerson (1990). The influence of microhabitats on the carbon isotopic composition of deep-sea benthic foraminifera. *Paleoceanography*, v. 5, p.161.
3. **McCorkle, D.C.** and S.R. Emerson (1988). The relationship between pore water carbon isotopic composition and bottom water oxygen concentration. *Geochim. Cosmochim. Acta*, v. 52, p. 1169.
2. **McCorkle, D.C.**, S.R. Emerson, and P.D. Quay (1985). Stable carbon isotopes in marine porewaters. *Earth Planet. Sci. Let.*, v. 74, p. 13-26.
1. Bower, P. and **D. McCorkle** (1980). Gas exchange, photosynthetic uptake, and carbon budget for a radiocarbon addition to a small enclosure in a stratified lake. *Can. J. Fish., Aquat. Sci.*, v. 37, n. 3, p. 464.

Technical Reports and Non-Refereed Publications:

- Pisias, N.G., Prell, W., Prah, F., Delaney, M., Lea, D., Jasper, J., Popp, B., Rau, G., Murray, R., **McCorkle, D.**, Rea, D., Derry, L., and workshop participants, 1995. Marine aspects of Earth System History (MESH) Proxy Development Workshop report.
- Exon, N.F, Marshall, J.F., **McCorkle, D.C.**, Alcock, M., Chaproniere, G.C.H., Connell, R., Dutton, S.J., Elmes, M., Findlay, C., Robertson, L., Rollet, N., Samson, C., Shafik, S., and Whitmore, G.P. 1995. AGSO Cruise 147 Report - Tasman Rises geological sampling cruise of *Rig Seismic*: Stratigraphy, tectonic history, and paleoclimate of the offshore Tasmanian region, Australian Geological Survey Organisation Record 1995/56.

Invited Lectures:

- 2011 "Time series of pCO₂, pH and Ω in Waquoit Bay, 2008-2010, and implications for shellfish recruitment" Waquoit Bay NERR Research Exchange
- 2010 "Controlling and measuring carbonate chemistry: the essential foundation for successful OA experiments", NOAA/NMFS Fisheries Ocean Acidification Workshop, Seattle, WA
- 2006 "Calibration studies of benthic foraminiferal shell chemistry: Free-range forams and laboratory culturing", Dept. of Earth Sciences, University of Goteborg, Sweden.
- 2003 Two talks at Oregon State University College of Oceanic and Atmospheric Sciences:
"Calibration studies of benthic foraminiferal shell chemistry: Free-range forams and

- laboratory culturing” and “Organic matter decomposition and calcium carbonate dissolution at the sea floor: Pore water ^{13}C and ^{14}C results”
- 2002 “A radiocarbon-based tracer of groundwater fluxes into estuaries and the coastal ocean”, Marine Biological Laboratory Ecosystems Center Seminar Series.
- 2001 “Controls on the shell chemistry of deep-sea benthic foraminifera”, Dept. of Geological Sciences, Brown University.
- 1999 “Pore water carbon isotope estimates of sea-floor carbonate dissolution”, LDEO miniconference: Mechanisms governing CaCO_3 dissolution in the deep sea.
- 1999 “Calibration studies of benthic foraminiferal isotopic and elemental composition”, AGU.
- 1999 “Calibration studies of benthic foraminiferal isotopic and elemental composition”, MIT Chemical Oceanography seminar.
- 1998 “Controls on Benthic Foraminiferal Shell Chemistry.” NOAA/CORC Southern Ocean Ventilation Workshop.
- 1995 "Carbon cycling in western equatorial Atlantic Sediments: Carbon isotopes on the Ceara Rise." Chemical Oceanography Gordon Conference.
- 1995 "Controls on the shell chemistry of benthic foraminifera.", Department of Geology, Australian National University.
- 1995 " $\delta^{13}\text{C}$ in the southeastern Indian Ocean: Glacial-Interglacial changes in ocean circulation", Australian Geological Survey Organization.
- 1993 "Pore water constraints on sea-floor carbonate dissolution.", Dept. of Earth and Planetary Science Colloquium Series, Harvard University.
- 1993 "Depth profiles of $\delta^{13}\text{C}$ in bottom water and core-top *C. wuellerstorfi* on the Ontong-Java Plateau and Emperor Seamounts" Chemical Oceanography/Geochemistry Friday seminar, MIT.
- 1992 "Glacial-Holocene Paleoproductivity off Western Australia: A Comparison of Proxy Records". NATO Advanced Research Workshop, Carbon Cycling in the Glacial Ocean: Constraints on the Ocean's Role in Global Change, Kiel, Germany.
- 1991 "Pore water $\delta^{13}\text{C}$ and the influence of microhabitats on the carbon isotopic composition of deep-sea benthic foraminifera", Dept. of Geological Sciences, Case-Western Reserve University.
- 1991 "Glacial-Interglacial changes in surface ocean productivity and water column chemistry in the Southeastern Indian Ocean", Australian Bureau of Mineral Resources, Marine Geosciences Division.
- 1991 "Pore water $\delta^{13}\text{C}$ and the influence of microhabitats on the carbon isotopic composition of deep-sea benthic foraminifera", Dept. of Geological Sciences, Australian National University.
- 1988 "The relationship between pore water carbon isotopic composition and bottom water oxygen concentration." Graduate School of Oceanography, University of Rhode Island.
- 1988 "Stable carbon isotopes in deep sea pore waters." Dept. of Geological Sciences, Brown University.

Institutional Service:

WHOI-MIT Joint Program – Chair of Joint Committee for Marine Geology and Geophysics
(2018)

WHOI Gender Equity Program Advisory Committee (2010-2013; co-chair 2011-2013)
 MIT-WHOI Joint Program Strategic Plan committee (2010-2011)
 WHOI Institute Oversight Committee (2009 - 2010)
 WHOI Housing Task Force (2007-2009)
 J. Seward Johnson Chair and Educational Coordinator, Department of Geology and
 Geophysics (2004-2010)
 WHOI-MIT Joint Program – Chair of Joint Committee for Marine Geology and Geophysics
 (2002-2004)
 WHOI Chairman of Summer Student Fellowship Committee and Coordinator of
 Undergraduate Programs (2000-2003)
 WHOI-MIT Joint Program - Joint Committee for Marine Geology and Geophysics (1993-
 2001)
 WHOI Summer Student Fellow selection committee (1992 and 1993)
 WHOI-MIT Marine Geology and Geophysics Curriculum Review Committee (1992)

Other Professional Activities:

Invited lecture (March 2019) Massachusetts Shellfish Officers Association; Shellfish constable
 training certificate program. Ocean and coastal acidification: examples from Waquoit
 Bay and Buzzards Bay
 Invited lecture (March 2018) Massachusetts Shellfish Officers Association
 Guest on WCAI Living Lab (April, 2016) “Ocean acidification threatens corals and shellfish”
 Invited panelist: Massachusetts Audubon Society screening of NOVA “Lethal Seas” ocean
 acidification documentary; Wellfleet MA, April 2016.
 Speaker at WHOI Associates Afternoon of Science, July 2015 “The Changing Climate of the
 Coastal Ocean: From Science to Solutions for the U.S. Northeast”
 NOVA (“Lethal Seas” – PBS documentary on ocean acidification; aired May 2015)
<http://www.pbs.org/wgbh/nova/earth/lethal-seas.html>
 Briefing for Congressional Staff – “Regional Impacts of Ocean Acidification” (Washington DC,
 October 2014 organized by National Association of Marine Laboratories), invited
 speaker.
 National Association of Marine Laboratories & Organization of Biological Field Stations (MBL,
 Woods Hole, MA, Sept 2014), participant.
 Northeast Association of Marine and Great Lakes Laboratories (Boothbay Harbor ME, July
 2014), presenter.
 Northeast Coastal Acidification Network (NECAN, Rye, NH, April 2014) State of the Science
 workshop, Invited participant.
 NOAA/NMFS Ocean Acidification workshop (Seattle WA, Aug 2010) Invited speaker
 OCB Ocean Acidification short course (Woods Hole MA, Oct-Nov 2009) Instructor /
 participant Ocean Carbon and Biogeochemistry Scoping Workshop on Ocean Acidification
 Research. Scripps Institution of Oceanography, October, 2007.
 NOAA/USGS/NSF workshop, The impacts of increasing atmospheric CO₂ on coral reefs and
 other marine calcifiers. St. Petersburg, FL, April, 2005
 GEOTRACES planning workshop, LDEO, May 2004

NSF Panelist – OCE Research Experience for Undergraduates (REU) program (2002 and 2004);
ATM REU program (2008); OCE MGG program (2019)

AGU sessions: Co-chair 1988 Fall Meeting ("Sediment Geochemistry"); session co-convenor
1996 Fall Meeting ("New Perspectives on Pleistocene Carbon Isotope Variability"); session
co-convenor 2004 Ocean Science ("Chemistry of Biogenic Carbonates"); session co-
convenor 2007 Fall Meeting ("Frontiers in Biomineralization Research: Processes,
Geochemical Signatures, and Responses to Global Change, I, II, III", and "Marine
Geochemistry and Biology")

Marine Aspects of Earth System History (MESH) Proxy Development Workshop, Co-chair of
Ocean Productivity Working Group (1995)

Scientific Committee on Oceanographic Research (SCOR), Ocean/Atmosphere Paleochemistry
Working Group (member 1988-1990)

Initial organizer, WHOI "Hot Topics in Earth Sciences" lecture series (1988)

Research Cruises and Remote Field Work:

2025 R/V *Connecticut*, Gulf of Maine

2018 Field work (benthic metabolism) in Key Largo, Florida

2013 Coral culturing experiments, Palau International Coral Research Center

2012 Coral culturing experiments, Bermuda Institute of Ocean Science

2011 Field work in Palau, Palau International Coral Research Center

2011 Coral culturing experiments, Bermuda Institute of Ocean Science

2011 R/V *Cape Hatteras*, South Carolina continental margin

2010 Water sampling, Liquid Jungle Lab, Panama

2010 R/V *Tioga*, pore water Nd sampling, Buzzards Bay MA

2010 Coral culturing experiments, Bermuda Institute of Ocean Science

2009 Coral culturing experiments, Bermuda Institute of Ocean Science

2009 R/V *Oceanus*, New England margin (Line W)

2008 M/V *Dream Island*, Red Sea coral reefs

2008 Coral culturing experiments, Bermuda Institute of Ocean Science

2008 R/V *Oceanus*, New England margin (Line W)

2007 Coral culturing experiments, Bermuda Institute of Ocean Science

2007 R/V *Endeavor*, New England margin (Line W)

2007 R/V *Hugh Sharp*, North Carolina and South Carolina Margin

2007 R/V *Endeavor*, North Carolina Margin

2006 R/V *Arne Tiselius*, Kristineberg Marine Research Station, University of Goteborg, Sweden

2006 R/V *Oceanus*, New England margin (Line W)

2006 R/V *Oceanus*, South Carolina continental margin and Bahama Bank sites

2006 Water sampling and instrument installation, Liquid Jungle Lab, Panama

2005 Water column and groundwater discharge sampling, Casco Bay, ME

2005 R/V *Cape Hatteras*, South Carolina continental margin and Bahama Bank sites

2004 Groundwater discharge sampling, Casco Bay, ME and Waquoit Bay, MA

2002 USCG *Healy*, Bering Sea

2002 R/V *Oceanus*, North Carolina continental margin

2001 R/V *Cape Henlopen*, North Carolina continental margin

1998 R/V *Knorr*, Brazil margin
1998 R/V *Knorr*, North Atlantic sediment drifts
1997-2002 Ground water sampling in North Carolina and South Carolina; 6 trips
1997 R/V *Moana Wave*, Ontong Java Plateau
1997 R/V *Pt. Sur*, Santa Barbara Basin
1996 R/V *Endeavor*, R/V *Oceanus*, continental margin/deep sea south of Nantucket
6 cruises (February, March, May, July and October 1996, and January 1997)
1995 R/V *Pt. Sur*, Santa Barbara Basin
1995 R/V *Rig Seismic*, South Tasman Rise
1994 R/V *Knorr*, Ceara Rise
1993 R/V *Cape Hatteras*, North Carolina continental margin/deep sea
1993 R/V *Sea Diver* / Submersible *Clelia*, Gulf of Maine
1991 R/V *Moana Wave*, Ontong Java Plateau
1990 R/V *Oceanus*, New York/New Jersey continental margin/deep sea
1990 R/V *Cape Hatteras*, North Carolina continental margin/deep sea
1988 R/V *New Horizon*, California continental margin/deep sea
1986 R/V *Cape Hatteras*, North Carolina continental margin/deep sea
1986 R/V *Thompson*, Panama Basin
1985 R/V *Melville*, Southern California Borderlands (2 cruises)
1984 R/V *Wecoma*, MANOP sites C and S
1983 R/V *Melville*, Southern California Borderlands (2 cruises)
1982 R/V *Melville*, MANOP sites C and S
1981 R/V *Thompson*, Baja California continental margin
1981 R/V *Melville*, MANOP sites M and H
1980 R/V *Melville*, MANOP sites M and H