

Michèle LaVigne, Ph.D.
Associate Professor, Department Chair
BOWDOIN COLLEGE DEPARTMENT OF EARTH AND OCEANOGRAPHIC SCIENCE
BRUNSWICK, MAINE, USA

Employment History

2024-present: Department Chair, Bowdoin College Dept. of Earth and Oceanographic Science
2020-present: Associate Professor, Bowdoin College Dept. of Earth and Oceanographic Science
2013-2020: Assistant Professor, Bowdoin College Dept. of Earth and Oceanographic Science
2012-2013: Visiting Assistant Prof., Bowdoin College Dept. of Earth and Oceanographic Sci.
2010-2012: Postdoctoral Scholar, UC Davis Department of Geology/Bodega Marine Laboratory
2011: Lecturer, UC Davis Department of Geology

Degrees

Hampshire College: Environmental Chemistry/Geology: B.A. February, 2003
Rutgers University: Oceanography: Ph.D. May, 2010

Research Experience

As a faculty member at Bowdoin, I lead an undergraduate-focused research program on marine biogeochemistry and paleoceanography across ocean regions and timescales. I study how global climate change has affected the biogeochemical cycling of ocean nutrients and carbon over the past several centuries—and how global warming will impact ocean acidification and marine biological response in the future. This includes trace elemental and isotopic proxy development and applications using surface corals, deep sea corals, and bivalves. I have leveraged grant funding from the National Science Foundation, NOAA Maine Sea Grant, and the Maine Community Foundation to train undergraduate researchers in modern and historical records of ocean acidification in the Gulf of Maine, nutrients in tropical surface oceans, and the intermediate ocean in the California Current region.

Key Publications (*denotes undergraduate student author)

Thatcher, D., Stewart, J., Wanamaker, A., Whitney, N., Guay, K., Franklin, H., **LaVigne, M.** (*accepted*) Understanding the boron isotope and pH relationship in four species of commercially important bivalves. *Geochemica et Cosmochimica Acta*

LaVigne, M., Strong, A., Stewart, A., Williams, B., Wanamaker A., Thatcher, D., Whitney, N. (*in prep*) Coastal paleoceanographic pH records question current approach to ocean acidification management. *Oceanography*.

Stewart, J., Williams, B., **LaVigne, M.**, Wanamaker, A., Strong, A., Jellison, B., Whitney, N., Thatcher, D., Robinson, L., Halfar, J., Adey, W. (2025) Delayed onset of ocean acidification in the Gulf of Maine. *Scientific Reports*. 15:2039. **AGU Journal Highlight: Eos**

*McMahon, T., Thatcher, D., Williams, B., Wanamaker, A., Jellison, B., Franklin, H., Guay, K., Whitney, N., Stewart, J., **LaVigne, M.** (2024) Contrasting responses of commercially important

Northwest Atlantic bivalve species to end of the century ocean acidification conditions. *Plos Climate* 3(11): e0000509

*Geyman, B. ('16), *Ptacek, J. ('17), **LaVigne, M.**, Horner, T.J. (2019) Barium in deep-sea bamboo corals: Phase associations, barium stable isotopes, & prospects for paleoceanography. *Earth and Planetary Science Letters*. 525, 115751.

*Serrato Marks, G., **LaVigne, M.**, Hill, T., Sauthoff, W., Guilderson, T., Roark, E., Dunbar, R. Horner, T.J. (2017) Reproducibility of Ba/Ca variations recorded by northeast Pacific bamboo corals. *Paleoceanography* 32.

*Frenkel, M., **LaVigne, M.**, *Miller, H., Hill, T., McNichol, A., Lardie, M. (2017) Quantifying bamboo coral growth rate nonlinearity with the radiocarbon bomb spike: A new model for paleoceanographic chronology development. *Deep Sea Research I* 125, 26-39.

LaVigne, M., Grottoli, A., Palardy, J., Sherrell, R. (2016) Multi-colony calibrations of coral Ba/Ca with a contemporaneous *in situ* seawater barium record. *Geochimica et Cosmochimica Acta* 179, 203-216.

LaVigne, M., Nurhati, I., Cobb, K., McGregor, H., Sinclair, D., Sherrell, R. (2013) ENSO-driven nutrient variability recorded by central equatorial Pacific corals. *Geophysical Research Letters* 40, 1-6. **Highlighted in: American Geophysical Union Research Spotlight:** GRL, EOS

LaVigne, M., Hill, T.M., Spero, H.J., Guilderson, T.P. (2011) Bamboo coral Ba/Ca: Calibration of a new deep ocean refractory nutrient proxy. *Earth and Planetary Science Letters*, 312, 506.

LaVigne, M., Matthews, K. A., Grottoli, A. G., Cobb, K. M., Cabioch, G., Sherrell, R. (2010) Coral skeleton P/Ca proxy: multi-colony calibration with a contemporaneous seawater phosphate record. *Geochimica et Cosmochimica Acta* 74, 1282-1293.

LaVigne, M., Field, M. P., Anagnostou, E. Grottoli, A. G., Wellington, G., Sherrell, R. M., (2008) Skeletal P/Ca tracks upwelling in Gulf of Panamá coral: Evidence for a new seawater phosphate proxy. *Geophysical Research Letters* 35, L05604. **Highlighted in: Science & AGU Journal Highlight:** GRL, EOS

Selected Academic Honors and Awards

2022: Bowdoin Faculty Research Award

2017: Kavli Foundation-National Academy of Sciences Fellow

2016-2017: Andrew W. Mellon Faculty Leave Fellowship, Bowdoin College

Professional Society Memberships:

American Geophysical Union (AGU)

American Association for the Advancement of Science (AAAS)

National Science Policy Network (NSPN)

National Association of Geoscience Teachers

Maine Coastal Climate Collaborative

Earth Science Women's Network

Scholars Strategy Network: Maine Chapter (SSN)