

Please ensure that your abstract fits into one column on one page and complies with the *Instructions to Authors* available from the Abstract Submission web page.

Marine Animal-Sediment Interactions Under Climate Change – Biogeochemical Consequences in the 21st Century

THOMAS S. BIANCHI^{1*}, ROBERT C. ALLER², TRISHA ATWOOD³, CRAIG BROWN⁴, LUIS BUATOIS⁵, LISA A. LEVIN⁶, JEFFREY S. LEVINTON⁷, JACK J. MIDDELBURG⁸, ELISE S. MORRISON¹, PIERRE REGNIER⁹, MICHAEL R. SHIELDS¹⁰, PAUL V.R. SNELGROVE¹¹, ERIK E. SOTKA¹², AND RYAN R.E. STANLEY¹³

¹University of Florida, Gainesville, FL USA;

tbianchi@ufl.edu, emorrison@ufl.edu

²Stony Brook University, Stony Brook, NY, USA;

robert.aller@stonybrook.edu

³Utah State University, Logan, UT, USA;

trisha.atwood@usu.edu

⁴Dalhousie University, Halifax, CA; Craig.Brown@dal.ca

⁵University of Saskatchewan, Saskatoon, SK, CA;

luis.buatois@usask.ca

⁶Scripps Institution of Oceanography, La Jolla, CA, USA;

llevin@ucsd.edu

⁷Stony Brook University, Stony Brook, NY, USA;

jeffrey.levinton@stonybrook.edu

⁸Utrecht University, Utrecht, NL; J.B.M.Middelburg@uu.nl

⁹Université Libre de Bruxelles, Brussels, BE;

Pierre.Regnier@ulb.ac.be

¹⁰Texas A&M University, College Station, TX, USA;

mshields@tamu.edu

¹¹Memorial University of Newfoundland, St John's, CA;

psnelgrove@mun.ca

¹²College of Charleston, Charleston, SC, USA;

SotkaE@cofc.edu

¹³Bedford Institute of Oceanography, Dartmouth, Nova

Scotia, CA; Ryan.Stanley@dfo-mpo.gc.ca

As we observe poleward redistribution of coastal taxa in response to climate warming, and functional responses to ocean acidification and deoxygenation, interest has grown globally with coupled responses in biogeochemical processing. Here, we focus on the role of benthic macrofauna on global biogeochemical cycles, with an emphasis on carbon dynamics. In particular, we explore carbon consumption uptake regulated indirectly (via predation on microbes) and directly (via the environment (ecosystem engineering, bioturbation, bio-irrigation), and how these gradients create critical zones that influence biological productivity, distribution, phenotypic plasticity, and/or evolution.