

Joshua Neilson Bostic

e-mail: j.n.bostic@geo.uio.no

Education

PhD Student, Geochemistry

Expected September 2020

Centre for Earth Evolution and Dynamics, University of Oslo, Oslo, Norway

Project Title: "High-resolution tree ring stable isotope analysis for reconstructing volcanic-induced seasonal temperature and precipitation changes: Determining agricultural productivity in Scandinavia following the 536 CE event "

M.S. Human Nutrition, Foods and Exercise

July 2015

College of Agriculture & Life Sciences, Virginia Tech, Blacksburg, VA

Thesis Title: "Stable Isotope Variability in the American Food Supply: Implications for Dietary Reconstruction Applications"

B.S. Human Nutrition, Foods and Exercise, *summa cum laude*

May 2012

College of Agriculture & Life Sciences, Virginia Tech, Blacksburg, VA

Research Experience

Doctoral Research Fellow

September 2017-Present

Centre for Earth Evolution and Dynamics, University of Oslo, Oslo, Norway

- Reconstructing volcanic-induced seasonal temperature and precipitation variations in Scandinavia *via* high-resolution stable isotope analysis of tree-rings from Raknehaugen
- Using reconstructed seasonal climate variations to develop GIS-based models of changes in arable land area in Scandinavia during volcanic winters
- Working with archeologists and anthropologists to interpret the societal effects of volcanic-induced climate change by comparing maps of arable land area and settlement area

Research Technician

May 2013-December 2015

Hope Jahren's Lab, Department of Geology and Geophysics, University of Hawaii at Manoa

- Support of indoor chamber growth experiments aimed at assessing how atmospheric CO₂ concentrations impact the stable carbon isotope composition of C3 and C4 terrestrial plants
- Developed a food stable carbon and nitrogen isotope database for Standard Reference in collaboration with the USDA's Nutrient Data Lab
- Oversaw day-to-day operation and maintenance of Isotope Ratio Mass Spectrometers, managed purchasing of supplies, and supervised undergraduate assistants

Graduate Research Assistant

May 2012-May 2013

Susan Hutson's Lab, Department of Human Nutrition, Foods and Exercise, Virginia Tech

- Developed an *in vitro* assay for assessing the effectiveness of phenylbutyrate therapy in Maple Syrup Urine Disease (MSUD) using radioactive enzyme assays and Western Blot
- Analyzed the mechanisms by which phenylbutyrate affects BCAA catabolic enzyme activity

Undergraduate Research Assistant

April 2011-May 2012

Susan Hutson's Lab, Department of Human Nutrition, Foods and Exercise, Virginia Tech

- Aided development of ¹⁴C-labeled leucine oxidation assay for determining effects of mTOR inhibitors on BCAA catabolic enzyme expression and activity in mouse lymphoma cells
- Measured differential BCATc expression and phosphorylation in response to rapamycin treatment via Western Blot

Publications

- E.A. Ananieva, **J.N. Bostic**, A.A. Torres, H.R. Glanz, S.M. McNitt, M.K. Brenner, M.P. Boyer, A.K. Addington & S.M. Hutson. 2018. Mice deficient in the mitochondrial branched-chain aminotransferase (BCATm) respond with delayed tumour growth to a challenge with EL-4 lymphoma. *British Journal of Cancer*, 119(8): 1009–1017.
- J.N. Bostic**, W.M. Hagopian and A.H. Jahren. 2018. Carbon and nitrogen stable isotopes in U.S. milk: Insight into production process. *Rapid Communications in Mass Spectrometry*, 32(7): 561-566.
- J.N. Bostic**, S.J. Palafox, M.E. Rottmueller and A.H. Jahren. 2015. Effect of baking and fermentation on the stable carbon and nitrogen isotope ratios of grain-based food. *Rapid Communications in Mass Spectrometry*, 29(10): 937-947.
- V.E. Hedrick, J.M. Zoeller, A.H. Jahren, **J.N. Bostic** and B.M. Davy. 2015. A dual-carbon-and-nitrogen stable isotope ratio model is not superior to a single-carbon stable isotope ratio model for predicting added sugar intake in Southwest Virginian adults. *The Journal of Nutrition*, 145(6): 1362-69.
- A.H. Jahren, **J.N. Bostic** and B.A. Davy. 2014. The potential for a carbon stable isotope biomarker of dietary sugar intake. *Journal of Analytical Atomic Spectrometry*, 29(5): 795-816.

Research Presentations

- Volcanic Impacts on Climate and Society 2019 Meeting Speaker** **April 2019**
The University of Cambridge, Cambridge, UK
Title: Predicting seasonal climate using intra-ring stable isotope analysis
- Kauai Sustainability Hydroponics Workshop Invited Speaker** **February 2015**
Grand Hyatt Kauai/Kauai Community College, Poipu, Hawaii
Title: "School Gardens and Sustainable Nutrition"
- Department of Food, Nutrition, and Animal Science Seminar Invited Speaker** **April 2013**
University of Hawaii at Manoa, Honolulu, Hawaii
Title: "A Stable Isotope Biomarker of Added Sugar Intake"
- National Collegiate Research Conference Plenary Speaker** **February 2012**
Harvard College, Cambridge, Mass.
Title: "Interaction Between Leucine Metabolism and Mammalian Target of Rapamycin (mTOR) Signaling"

Teaching

- Assistant Instructor**
Department of Geology and Geophysics, University of Hawaii at Manoa
GG 102: Introduction to Global Change **Fall 2013-2014**
Section Title: "Climate Change and the Obesity Epidemic"
- Graduate/Undergraduate Teaching Assistant**
College of Agriculture & Life Sciences, Virginia Tech
- | | |
|---|-------------------------|
| HNFE 4174: Nutrition and Physical Performance | Spring 2013 |
| HNFE 3026: Metabolic Nutrition: Vitamin & Mineral Metabolism | Spring 2013 |
| HNFE 2014: Nutrition Across the Lifespan | Fall 2012 |
| HNFE 2984: Undergraduate Journal Club | Spring 2012-2013 |
| HNFE 1004: Foods and Nutrition | Fall 2010 |