Ocean Carbon & Biogeochemistry (OCB) Project Office
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Heather M. Benway

CURRICULUM VITAE

Education

Ph.D., Oceanography, Oregon State University, Corvallis, OR (2005)
M.S., Earth Sciences, University of New Hampshire, Durham, NH (1997)
B.S., Environmental Sciences, University of Rochester, Rochester, NY (1994)

Experience

- Executive Officer, Ocean Carbon and Biogeochemistry (OCB) Program (May 2007 – present)
- Comer-Steele Postdoctoral Scholar, Dept. of Geology and Geophysics, Woods Hole Oceanographic Institution (Oct. 2005 – May 2007)
- Graduate Research Assistant, College of Oceanic and Atmospheric Sciences, Oregon State University (2000 – 2005)
- Program Manager, Paleoclimatology Program, National Oceanic and Atmospheric Administration (subcontractor with UCAR), Office of Global Programs (currently the NOAA Climate Program Office) (1998 – 2000)
- National Sea Grant Federal Fellows Program/Dean John A. Knauss Marine Policy Fellow, National Oceanic and Atmospheric Administration, Office of Global Programs (1997 – 1998)
- Graduate Research Assistant, Estuarine/Coastal Chemistry Laboratory, Institute for the Study of Earth, Oceans, and Space, University of New Hampshire (1995 - 1996)
- Graduate Teaching Assistant, Introductory Oceanography, Department of Earth Sciences, University of New Hampshire (1994)
- Undergraduate Research Assistant, Department of Biology, University of Rochester (1993 - 1994)

Professional Service

- Member of SCOR (Scientific Committee on Ocean Research) Working Group *MARCHEMSPEC: Chemical Speciation Modeling in Seawater to Meet 21st Century Needs* (2015-)
- Reviewer for *Quaternary Science Reviews*, *Marine Micropaleontology*, *Geophysical Research Letters*, *Geochemistry Geophysics Geosystems*, *Earth and Planetary Science Letters*, *Paleoceanography*, *Deep-Sea Research*, *Bulletin of Marine Science*, *Journal of Geophysical Research-Oceans*, National Science Foundation, European Research Council
- Member of WHOI Women's Committee (2010-2012)
- Participation in NOAA and NSF proposal review panels
- President and Department Representative, WHOI Postdoctoral Association (2006-2007)

- Postdoctoral representative, WHOI Gender Equity Committee (2006-2007)

Interests

Carbon cycle and climate change science, including paleoceanography, micropaleontology, sedimentology, isotope geochemistry, marine biogeochemistry, ocean acidification, higher education curriculum development, science communication and outreach

Teaching, Mentoring, and Outreach

- Developer of Interactive Global Carbon Cycle Exhibit, Woods Hole Oceanographic Institution Exhibit Center (Funding obtained from the Camille and Henry Dreyfus Foundation, Inc.) - http://www.whoi.edu/feature/carboncycle/
- Presenter of interactive oceanographic programs for St. David's School 7th grade students at the Cape Cod Sea Camps (2011-2014)
- Presenter on ocean acidification and other ocean topics to junior high students, WHOI Ocean Science Journalism fellows, and general public (2011-2015)
- Exhibitor and presenter (all age ranges) on oceanography and ocean acidification at the USA Science and Engineering Festival (Washington, DC, October 2010)
- Presenter at teacher workshop on ocean acidification in Woods Hole, MA (December 2009)
- Coordinator and convener of 2-week short course on ocean acidification in Woods Hole, MA (November 2009)
- Lecturer on paleoclimatology for the Woods Hole Partnership Education Program (June 2009, 2010)
- Coordinator of summer educational programs for MS PHDS (Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science) students in Woods Hole, MA (2007-2009)
- Guest lecturer for graduate-level marine geology and oceanography classes
- Volunteer and judge for local annual high school science fairs (Falmouth, MA, 2006-2013)

Honors and Awards

- Comer-Steele Postdoctoral Scholar, Woods Hole Oceanographic Institution (2005)
- USGS Mendenhall Postdoctoral Research Fellowship (2005 – declined)
- Schlanger Ocean Drilling Program Fellow (2002)
- IMAGES Most Outstanding Student Poster Prize, International Conference on Paleoceanography VII, Sapporo, Japan (2001)
- National Sea Grant Federal Fellows Program/Dean John A. Knauss Marine Policy Fellow (1997)

Seagoing Experience

- Sedimentologist, Ocean Drilling Program Leg 202, D/V *JOIDES Resolution*, Valparaiso, Chile - Balboa, Panama (April-June 2002)
- Geochemist, NEMO Expedition, Leg 3, R/V *Melville*, Manzanillo, Mexico – Puntarenas, Chile (May-June 2000)

- Chief Scientist, R/V *Gulf Challenger*, three (seasonal) hydrographic surveys, Gulf of Maine (August 1994 – December 1996)

Peer-Reviewed Publications

Hamilton, T. S., R. J. Enkin, M. Reidel, G. C. Rogers, J. W. Pohlman, H. M. Benway (2015), Paleoseismicity of the Cascadia accretionary wedge off western Canada: Slipstream; an early Holocene slump and turbidite record from the frontal ridge. *Can. J. Earth Sci.* 52: 1–26, dx.doi.org/10.1139/cjes-2014-0131.

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, P. Ziveri (2014). Detecting the unexpected: A research framework for ocean acidification. *Environmental Science & Technology* 48, 9982-9994, dx.doi.org/10.1021/es501936p.

St. John, M.A., M. Barange, A. Mitra, H. Benway, K.J. Flynn, J. Holt, G. Merino, A. Martin, W. Melle, R. Sanders, V.M Trenkel, I. Grigorov and E. Hofmann (2014). Introduction to BASIN Special Issue on *North Atlantic Ecosystems, the role of climate and anthropogenic forcing on their structure and function*: State of art, past, present, a view to the future. *Progress in Oceanography*, 129, 171-175.

Benway, H. M., J. F. McManus, D. W. Oppo, and J. L. Cullen (2010). Hydrographic changes in the eastern subpolar North Atlantic during the last deglaciation. *Quaternary Science Reviews* 29, 3336-3345.

Waelbroeck, C. and MARGO Project Members (2009). Constraints on the magnitude and patterns of ocean cooling at the Last Glacial Maximum. *Nature Geoscience* 2, 127-132, 10.1038/NGEO411.

Benway, H. M., A. C. Mix, B. A. Haley, and G. P. Klinkhammer (2006). Eastern Pacific Warm Pool paleosalinity and global climate variability: 0-30 kyr. *Paleoceanography,* 21, PA3008, doi: 10.1029/2005PA001208.

Benway, H. M. (2005). Modern and past climate variability in the Eastern Pacific Warm Pool. Ph.D. Dissertation: Oregon State University, Corvallis, OR. 116 pp.

Barker, S., I. Cacho, H. M. Benway, and K. Tachikawa (2005). Planktonic foraminiferal Mg/Ca as a proxy for past oceanic temperatures: A methodological overview and data compilation for the Last Glacial Maximum. MARGO (Multiproxy Approach for the Reconstruction of the Glacial Ocean surface) Special Volume*, Quaternary Science Reviews,* 24: 821-834.

Klinkhammer, G. P., B. A. Haley, A. C. Mix, H. M. Benway, M. Cheseby (2004). Evaluation of automated flow-through time-resolved analysis of foraminifera for Mg/Ca paleothermometry. *Paleoceanography*, 19, PA4030, doi:10.1029/2004PA001050.

Benway, H. M. and A. C. Mix (2004). Oxygen isotopes, upper-ocean salinity, and precipitation sources in the eastern tropical Pacific. *Earth and Planetary Science Letters* 224(3-4): 493-507.

ODP Leg 202 Shipboard Scientific Party (2003). Leg 202 Summary. *In* Mix, A. C., Tiedemann, R., Blum P., et al., *Proceedings of the Ocean Drilling Program, Initial Reports* 202: College Station TX (Ocean Drilling Program), 145 pp.

Benway, H. M., B. A. Haley, G. P. Klinkhammer, and A. C. Mix (2003). Adaptation of a flow- through leaching procedure for Mg/Ca paleothermometry. *Geochemistry Geophysics Geosystems* 4(2), 8403, doi: 10.1029/2002GC000312.

Benway, H. M. (1997). An investigation of the nutrient dynamics of Jeffreys Basin: A seasonal nutrient trap. M.S. Thesis: University of New Hampshire, Durham, NH. 137 pp.

Ballabeni, P., H. M. Benway, and J. Jaenike (1995). Lack of behavioral fever in nematode-parasitized *Drosophila*. *Journal of Parasitology*. 81: 670-674.

Jaenike, J., H. M. Benway, and G. Stevens (1995). Parasite-induced mortality in mycophagous *Drosophila*. *Ecology*. 76: 383-391.

Other Scientific Publications and Products

Hofmann, E., St. John, M., Benway, H. M. (Editors) (2015). A science plan for a collaborative international research program on the coupled North Atlantic-Arctic system, a report of a Planning Workshop for an International Research Program on the Coupled North Atlantic-Arctic System (14-16 April 2014, Arlington, VA), 37 pp., http://www.whoi.edu/website/NAtl_Arctic/

Benway, H. M., E. Hofmann, M. St. John (2014). Building international research partnerships in the North Atlantic-Arctic System: An international planning workshop for a North Atlantic-Arctic science program. *Eos Trans. AGU* 95(35), 317, DOI: 10.1002/2014EO350007.

Benway, H. M., Coble, P. G. (Eds.) (2014). Report of the U.S. Gulf of Mexico carbon cycle synthesis workshop, March 27-28, 2013, Ocean Carbon and Biogeochemistry Program and North American Carbon Program, 67 pp.

Benway, H. M., S. C. Doney (2014). Scientific outcomes and future challenges of the Ocean Carbon and Biogeochemistry (OCB) Program. *Oceanography.* 27(1): 106-107.

Lorenzoni, L., Benway, H. M. (Editors) (2013). Report of global intercomparability in a changing ocean: An international time-series methods workshop, November 28-30, 2012, Ocean Carbon and Biogeochemistry (OCB) Program and International Ocean Carbon Coordination Project (IOCCP), 61 pp.

Benway, H. M., Doney, S. C. (2013). Addressing biogeochemical knowledge gaps. *International Innovation*, 12-14.

Benway, H. M., M. Telszewski, and L. Lorenzoni (2013), Improving intercomparability of marine biogeochemical time series, *Eos Trans. AGU* 94(17), 160.

Benway, H. M. (2011). Quantifying the coastal contribution to the North American carbon budget: A Coastal Interim Synthesis Workshop, San Francisco, California, 11-12 December 2010. *Eos Trans. AGU* 92 (23).

Cooley, S. R., J. Kleypas, H. Benway (2011). U.S. ocean acidification researchers: First national meeting: Ocean Carbon and Biogeochemistry Program Ocean Acidification Principal Investigators' Meeting; Woods Hole, Massachusetts, 22–24 March 2011. *Eos Trans. AGU* 92 (36).

Cooley, S. R., H. M. Benway (2010). Linking introductory chemistry and the geosciences through ocean acidification. *The Earth Scientist* (quarterly publication of the National Earth Science Teachers Association) 26(1), 39-42.

Benway, H. M., S. C. Doney (2010). Ecosystems and biogeochemical cycling in a changing ocean:

Fifth annual Ocean Carbon and Biogeochemistry (OCB) Summer Science Workshop. *Eos Trans. AGU* 91 (44).

Benway, H. M., S. R. Cooley, S. C. Doney (2010). A catalyst for ocean acidification research and collaboration: Ocean Carbon and Biogeochemistry Short Course on Ocean Acidification; Woods Hole, Massachusetts, 2–13 November 2009. *Eos Trans. AGU* 91 (12).

Benway, H. M., S. C. Doney (2009). Multidisciplinary perspectives in marine biogeochemistry and ecology: Fourth annual Ocean Carbon and Biogeochemistry (OCB) summer science workshop. *Eos Trans. AGU* 90 (45).

Benway, H. M. and S. C. Doney (2008). Ocean carbon cycling and climate impacts on marine ecosystems: Third annual Ocean Carbon and Biogeochemistry summer science workshop. *Eos Trans. AGU* 89 (47).

Benway, H. M. (Editor) (2008-). *OCB News,* Ocean Carbon & Biogeochemistry newsletter.

Benway, H. M. and S. C. Doney (2007). Advancing the integration of marine ecosystem dynamics and biogeochemistry: Second annual Ocean Carbon and Biogeochemistry summer workshop. *Eos Trans. AGU* 88 (47).

Doney, S. C. and H. M. Benway (2007). Ocean Carbon and Biogeochemistry: An eye toward integrated research. *Limnology and Oceanography Bulletin* 16(3): 69.

Benway, H. M. (2005). Eastern Pacific temperature and $d^{18}O_{sw}$ during the closure of the Panama Isthmus. Joint Oceanographic Institutions/U.S. Science Advisory Committee Newsletter, Winter 2005, Schlanger Ocean Drilling Fellowship Profile.

Scientific Websites

- Ocean Carbon and Biogeochemistry (OCB) Program: www.us-ocb.org (2007-)
- Ocean fertilization informational website for scientists, educators, policy makers, media, and the general public: http://www.whoi.edu/ocb-fert (2010-)
- International Biogeochemical Time-Series Network: http://www.whoi.edu/website/TS-network/ (2013-)
- International North Atlantic-Arctic research coordination: http://www.whoi.edu/website/NAtl_Arctic/ (2014-)