

Xuefeng “Nick” Peng

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EDUCATION

- Sept. 2015 Ph.D. Department of Geosciences, Princeton University, Princeton, NJ
Dissertation: Nitrogen cycling in strong redox gradients of marine environments:
oceanic oxygen minimum zones and salt marsh sediments
Advisor: Bess Ward
- 2014 Microbial Diversity Course, Marine Biological Laboratory, Woods Hole, MA
Project: Investigating microbial communities in salt marsh sediments using
CARD-FISH
- May 2010 B.A., Economics, Environmental Studies double major (Summa Cum Laude),
Connecticut College, New London, CT
Honors Thesis: The effect of long-term fertilization on the population dynamics
of ammonia-oxidizing bacteria and archaea in Great Sippewissett Marsh
Advisor: Anne Bernhard
- Fall 2008 Semester in Environmental Science, Marine Biological Laboratory, Woods Hole,
MA
Project: Nitrogen cycling in sediments in two stretches of the Coonamessett
River
Advisor: Anne Giblin
- 2003-2006 High School, Shenzhen Middle School, Shenzhen, China
Focus: Mathematics, Physics

RESEARCH INTERESTS

Biogeochemistry of nitrogen in marine environments, particularly in oxygen minimum zones and salt marsh sediments, microbial and molecular methods to study the link between nitrogen cycling processes and the microorganisms responsible for them.

PUBLICATIONS

- Peng, X., Yando, E., Hildebrand, E., Dwyer, C., Kearney, A., Waciega, A., Valiela, I., and Bernhard, A.E. (2013). Differential responses of ammonia-oxidizing archaea and bacteria to long-term fertilization in a New England salt marsh. *Frontiers in Microbiology* 3: 445.
- Peng, X., Jayakumar, A., and Ward, B.B. (2013). Community composition of ammonia-oxidizing archaea from surface and anoxic depths of oceanic oxygen minimum zones. *Frontiers in Microbiology* 4: 177.
- Jayakumar, A., Peng X., and Ward, B.B. (2013). Community composition of bacteria involved in fixed nitrogen loss in the water column of two major oxygen minimum zones in the ocean. *Aquatic Microbial Ecology* 70: 245-259.
- Ji, Q., Babbin, A.R., Peng, X., Bowen, J.L., and Ward, B.B. Nitrogen substrate-dependent nitrous oxide cycling in salt marsh sediments. *Journal of Marine Research* 73: 71-92.

Peng, X, Fuchsman, C.A., Martens-Habbena, W., Jayakumar, A., and Ward, B.B. Ammonium and nitrite oxidation in the Eastern Tropical North Pacific. *Global Biogeochemical Cycles*, in revision.

PUBLICCATIONS IN PREPARATION

Peng, X, Fuchsman, C.A., Jayakumar, A., Devol, A.H., and Ward, B.B. Revisiting nitrification rates in the Eastern Tropical South Pacific: a focus on its controls.

Peng, X., Ji, Q., Angell, J., Kearns, P., Bowen, J., and Ward, B.B. Accelerated rates of nitrogen cycling and N₂O production in salt marsh sediments due to long-term fertilization.

Peng, X., Ji, Q., Angell, J., Kearns, P., Yang, J.H., Bowen, J., and Ward, B.B. Long-term fertilization alters the relative importance of nitrate reduction pathways in salt marsh sediments.

ORAL and POSTER PRESENTATIONS

- July 2015 “Ammonium and nitrite oxidation in the eastern tropical North and South Pacific OMZs”, Gordon Research Conference and Seminar in Chemical Oceanography, Plymouth, NH
- June 2015 “Nitrification in the eastern tropical North and South Pacific OMZs”, 4th International Conference on Nitrification (ICoN4), Edmonton, Canada
- February 2015 “Nitrification rates in the eastern tropical South Pacific oxygen minimum zone”, Aquatic Sciences Meeting, Granada, Spain
- December 2014 “Large rise in N₂O production in salt marsh sediments due to long-term fertilization”, American Geophysical Union Fall Meeting, San Francisco, CA
- April 2014 “Ammonia oxidizers in oceanic oxygen-minimum zones”, Theobald Smith Society Meeting, New Brunswick, NJ
- February 2014 “Nitrification in the eastern tropical North Pacific Ocean”, Ocean Sciences Meeting, Honolulu, HA
- September 2013 “Nitrification in the eastern tropical North Pacific Ocean”, 3rd International Conference on Nitrification, Tokyo, Japan
- February 2013 “Effect of long-term fertilization on nitrogen removal from a salt marsh ecosystem”, Aquatic Sciences Meeting, New Orleans, LA
- June 2012 “Ammonia oxidizers in oceanic oxygen-minimum zones”, General Meeting of American Society of Microbiology, San Francisco, CA
- November 2011 “Ammonia oxidizers in oceanic oxygen-minimum zones”, Graduate Student Symposium, Department of Geosciences, Princeton University, Princeton, NJ
- August 2010 “Impact of long-term fertilization on community structure of ammonia oxidizers in a New England salt marsh”, International Society of Microbial Ecology 13th meeting, Seattle, WA
- April 2009 “Nitrogen cycling in sediments in two stretches of the Coonamessett River, Falmouth MA”, Spring Meeting of the New England Estuarine Research Society, Salem, MA

RESEARCH EXPEDITIONS

- June/July 2013 R/V Nathaniel B. Palmer, Eastern Tropical South Pacific, 33 days
March/April 2012 R/V Thomas G. Thompson, Eastern Tropical North Pacific, 28 days
2011-2013 Six week-long field trips to the Great Sippewissett Marsh, Falmouth, MA

TEACHING-RELATED EXPERIENCE

- 2014-2015 *Coordinator*, Senior Thesis Writing Group, Department of Geosciences, Princeton University
Spring 2013-15 *Lab instructor (full-time teaching assistant)*, Ocean, Atmosphere, and Climate, Princeton University
2013-2014 Teagle Teaching Seminar, McGraw Center for Teaching and Learning, Princeton University
Spring 2013 Master Class in Teaching, McGraw Center for Teaching and Learning, Princeton University
Spring 2011 *Taichi Instructor*, the Jewish Center of Princeton

MENTORING EXPERIENCE

- 2014-2015 Martin Wolf, Senior Thesis “The source and fate of nitrate in the subsurface North Atlantic”
2014-2015 Hannah Yang, “The significance of dissimilatory nitrate reduction to ammonium in salt marsh sediments”

HONORS and AWARDS

- 2014 Arnold Guyot Teaching Award, Department of Geosciences, Princeton University
2010-2014 Centennial Fellowship, Princeton University
June 2012 American Society of Microbiology Meeting Student Travel Award
May 2010 Anthony Francis Nelson Memorial Prize for Environmental Studies
April 2009 Rankin Award for Best Undergraduate Student Research Presentation by the New England Estuarine Research Society
Fall 2008 Marine Biological Laboratory Associates Award for Research Project
May 2008 Econometrics Prize
April 2007 Julia Wells Bower Prize for Mathematics
2006-2010 Dean’s High Honors, Dean’s Honors all semesters

ADDITIONAL EXPERIENCE

- 2012-2015 *Head Chinese Flutist*, Princeton University Chinese Music Ensemble, Princeton, NJ
2009-2010 *Senior Admission Fellow*, Office of Admission, Connecticut College, New London, CT
Summer 2009 *Intern*, Science Department, Yukon River Inter-Tribal Watershed Council, Fairbanks, AK