

CURRICULUM VITAE

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EDUCATION

California Institute of Technology, B.S., Environmental Engineering Science	1995
Scripps Institution of Oceanography, UC San Diego, M.S., Oceanography	1998
Princeton University, M.A., Geosciences	1999
Princeton University, Ph.D., Geosciences	2002

PROFESSIONAL EXPERIENCE

Positions held

NRC Postdoctoral Fellow, US Geological Survey, Reston VA	2002 - 2004
Assistant Scientist, Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution	2004 - 2008
Associate Scientist, Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution	2008 - 2010
Assistant Professor, EESS, Stanford University	2011 - present

Courses taught

2013	Stanford EESS 249 Marine Stable Isotopes
2013	Stanford EESS 212 Measurements in Earth Systems
2013	Stanford EESS 152/252, EarthSYS 152/252 Marine Chemistry
2012	Stanford EESS 249 Marine Stable Isotopes
2012	Stanford EESS 212 Measurements in Earth Systems
2010	MIT/WHOI 12.748 Introduction to Isotope Chemistry, co-taught
2010	MIT/WHOI 12.744 Marine Isotope Chemistry, co-taught
2008	MIT/WHOI 12.748 Introduction to Isotope Chemistry, co-taught
2008	MIT/WHOI 12.744 Marine Isotope Chemistry, co-taught
2006	MIT/WHOI 12.748 Introduction to Isotope Chemistry, co-taught
2006	MIT/WHOI 12.744 Marine Isotope Chemistry, co-taught
2006	MIT/WHOI 12.742 Marine Chemistry, co-taught
2006	MIT/WHOI 12.742 Marine Chemistry, co-taught
2005	MIT/WHOI 12.759 Marine Chemistry Seminar
2004	MIT/WHOI 12.742 Marine Chemistry, co-taught
2000	Princeton University: Oceanography Lecture and Lab (GEO 202)
1995-1997	University of California, San Diego: Environmental Microbiology (BIMM 126), Bacteriology (BIMM 120), Microbial Genetics (BIMM 122), Zooplankton Ecology (SIO 271)

Postdoctoral Mentoring

Alyson Santoro, Postdoctoral Scholar and Investigator, Woods Hole Oceanographic Institution (December 2008-April 2011). Currently: Assistant Professor, University of Maryland Horn Point Laboratory
Jagruiti Vedamati, Postdoctoral Researcher (March 3, 2014-present, Stanford)

Graduate students (completed)

Daniel Rogers, PhD. Graduated June 2010, MIT/WHOI Joint Program in Chemical Oceanography. Currently: Postdoctoral Investigator, Harvard University

Erin Banning, PhD. Graduated June 2010, MIT/WHOI Joint Program in Biological Oceanography. Currently: Research Scientist, Algenol Biofuels, Inc.
Caitlin Frame, PhD. Graduated February 2011, MIT/WHOI Joint Program in Chemical Oceanography. Currently: Postdoctoral Investigator, University of Basel, Switzerland
Carolyn Buchwald, PhD. Graduated September 2012, MIT/WHOI Joint Program in Chemical Oceanography. Currently: Postdoctoral Investigator, Woods Hole Oceanographic Institution.

Graduate students (in progress)

Brian Peters, PhD student (current 3rd year Stanford EESS student)
Taylor Martin, PhD student (current 2nd year Stanford EESS student)

Undergraduate researchers

Carolyn Buchwald (WHOI summer student fellow, 2006). Currently: Postdoctoral Investigator, Woods Hole Oceanographic Institution.
Cara Manning (WHOI 2009 summer student fellow). Currently: PhD student, Woods Hole Oceanographic Institution.
Cathleen Turner (Stanford SURGE program, 2011). Currently: Masters Student, URI.
Timothy Santos (Stanford SES Undergraduate Research Program, 2011). Currently: Senior in Computer Science, Stanford.

High School Students

Anna Leschen-Lindell (Falmouth Academy Science Fair Project, 2006). Graduate, Colby College, BA in Global Environmental Justice, 2013.
Charlotte Philip (Stanford School of Earth Sciences High School Intern Program, 2013).
Currently: Junior at Menlo-Atherton High School

HONORS, FELLOWSHIPS, AND AWARDS

2011	Terman Fellow Stanford University
2008-2011	WHOI Coastal Ocean Institute Fellow
2002	NRC Postdoctoral Research Associateship
2002	Ocean Sciences Meeting Outstanding Student Presentation Award
2001	Princeton University Harold W. Dodds Honorific Fellowship
1997	AGU Fall Meeting Outstanding Student Paper-Atmospheric Sciences
1994	NSF Research Experience for Undergraduates (REU) Fellowship

COMMITTEE ASSIGNMENTS:

PhD Dissertation Committee Member for 18 students, 2004-present
University Chair of Oral Examination (Ph.D. Dissertation Defense) for 2 Stanford Ph.D. students, 2001-present
Geobiology Search Committee Member, 2011-2012
EESS Department Seminar Organizer, Winter 2013

PROFESSIONAL ACTIVITIES

Vice Chair Elect (2015) and Chair Elect (2017), Gordon Research Conference in Chemical Oceanography
Executive Committee AGU/Ocean Sciences Section 2013-present
Program Committee for 2014 Ocean Sciences Meeting, Honolulu, HI
Co-chair for 2016 Ocean Sciences Meeting, New Orleans, LA
US GEOTRACES Steering Committee January 2012-present.
International GEOTRACES Standards and Intercalibration Committee May 2013-present

Associate Editor, *Limnology and Oceanography: Methods*, 2006-present
Associate Editor, *Marine Chemistry*, 2009-present
Intercalibration coordinator for GEOTRACES nitrate isotope measurements, 2007-present
Attended GEOTRACES scoping workshops for the Pacific Ocean (June 25-30, 2007) and Indian Ocean (October 24-26, 2007), implementation workshops for the Atlantic Ocean (September 22-24, 2008) and Pacific Ocean (October 1-3, 2008), intercalibration workshops (December 8-9, 2007 and December 13-14, 2008), North Atlantic Section data workshop (March 11-15, 2013), Pacific Section cruise planning meeting (April 24-26, 2013).
Reviewer for NSF (OCE CO and BO, MIP/MO, ETBC, Ecosystems, Chemistry, PIRE), as well as the following journals: *Science*, *Nature*, *Nature Geoscience*, *Proceedings of the National Academy of Sciences*, *ISME Journal*, *Environmental Microbiology*, *PLOS Biology*, *Limnology and Oceanography*, *Limnology and Oceanography: Methods*, *Global Biogeochemical Cycles*, *Marine Chemistry*, *Deep Sea Research*, *Applied and Environmental Microbiology*, *Analytical Chemistry*, *Progress in Oceanography*, *Journal of Geophysical Research*, *Geophysical Research Letters*, *Rapid Communications in Mass Spectrometry*, *Geochimica et Cosmochimica Acta*, and two chapters for the new edition of *Nitrogen in the Marine Environment*.

MEMBERSHIP IN PROFESSIONAL SOCIETIES AND SCHOLARLY ORGANIZATIONS:

American Association for the Advancement of Science (AAAS)
American Geophysical Union (AGU)
American Society of Limnology and Oceanography (ASLO)
Nitrification Network

PEER-REVIEWED PUBLICATIONS

(* = Authored by graduate student or postdoctoral member of Casciotti group)

50. Z. W. Brown, **K. L. Casciotti**, R. L. Pickart, J. H. Swift, and K. R. Arrigo. 2014. Aspects of the Marine Nitrogen Cycle on the Chukchi Sea Shelf and Canada Basin. In press, *Deep Sea Research II, ICESCAPE Special Issue*.
49. B. Peters*, **K. L. Casciotti**, V. A. Samarkin, M. T. Madigan, C. A. Schulte, and S. B. Joye. 2014. Stable isotopic analyses of NO_2^- , NO_3^- , and N_2O in hypersaline ponds and soils of the McMurdo Dry Valleys, Antarctica. In press, *Geochimica et Cosmochimica Acta*.
48. Smith, J. M., **K. L. Casciotti**, F. P. Chavez, C. A. Francis. 2014. Differential contributions of archaeal ammonia oxidizer ecotypes to nitrification in coastal surface waters. *ISME Journal* doi:10.1038/ismej.2014.11.
47. **Casciotti, K. L.**, C. Buchwald*, and M. R. McIlvin*. 2013. Implications of nitrate and nitrite isotopic measurements for the mechanisms of nitrogen cycling in the Peru oxygen deficient zone. *Deep Sea Research I* 80: 78-93.
46. Hastings, M. G., **K. L. Casciotti**, and E. M. Elliott. 2013. Stable isotopes as tracers of anthropogenic nitrogen sources, deposition, and impacts. *Elements* 9: 339-344.
45. Santoro*, A. E., C. M. Sakamoto, J. M. Smith, J. N. Plant, A. L. Gehman, A. Z. Worden, K. S. Johnson, **K. L. Casciotti**. 2013. Measurements of nitrite production and nitrite-producing organisms in and around the primary nitrite maximum in the central California Current. *Biogeosciences* 10: 7395-7410.

44. Buchwald*, C. and **K. L. Casciotti**. 2013. Isotopic ratios of nitrite as tracers of the sources and age of oceanic nitrite. *Nature Geoscience* 6: 308-313.
43. Lunau, M., M. Voss, M. Erickson, C. Dziallas, **K. L. Casciotti**, and H. Ducklow. 2013. Excess nitrate loads to coastal waters reduces nitrate removal efficiency: mechanism and implications for coastal eutrophication. *Environmental Microbiology* 15: 1492-1504.
42. **Casciotti, K. L.** and C. Buchwald*. 2012. Insights on the marine microbial nitrogen cycle from isotopic approaches to nitrification. *Frontiers in Microbiology* 3: 356.
41. Buchwald*, C., A. Santoro*, M. McIlvin*, and **K. L. Casciotti**. 2012. Oxygen isotopic composition of nitrate and nitrite produced by nitrifying co-cultures and natural marine assemblages. *Limnology and Oceanography* 57: 1361-1375.
40. Noble, A., C. H. Lamborg, D. C. Ohnemus, P. J. Lam, T. J. Goepfert, C. I. Measures, C. H. Frame*, **K. L. Casciotti**, G. R. DiTullio, J. Jennings, and M. A. Saito. 2012. Basin-scale input of cobalt, iron, and manganese from the Benguela-Angola front to the South Atlantic Ocean. *Limnology and Oceanography* 57: 989-1010.
39. Saenz, J. P., E. C. Hopmans, D. Rogers*, P. Henderson, M. A. Charette, **K. L. Casciotti**, S. Shouten, J. S. Sinninghe-Damste, T. I. Eglington. 2012. Distribution of anaerobic ammonia-oxidizing bacteria in a subterranean estuary. *Marine Chemistry* 136-137: 7-13.
38. Bernhard, J. M., **K. L. Casciotti**, M. R. McIlvin*, D. J. Beaudoin, P. T. Visscher, and V. P. Edgcomb. 2012. Potential importance of physiologically diverse foraminifera in sedimentary nitrate storage and respiration. *JGR Biogeosciences* 117: G03002, doi: 10.1029/2012JG001949.
37. Bernhard, J. M., V. P. Edgcomb, **K. L. Casciotti**, M. R. McIlvin*, and D. J. Beaudoin. 2012. Denitrification likely catalyzed by endobionts in an allogromiid foraminifer. *ISME Journal* doi:10.1038/ismej.2011.171.
36. Santoro*, A. E., C. Buchwald*, M. R. McIlvin*, and **K. L. Casciotti**. 2011. Isotopic Signature of N₂O Produced by Marine Ammonia-Oxidizing Archaea. *Science* 333: 1282-1285.
35. Santoro*, A. E. and **K. L. Casciotti**. 2011. Enrichment and characterization of ammonia-oxidizing archaea from the open ocean: phylogeny, physiology, and stable isotope fractionation. *ISME Journal* 5: 1796-1808.
34. **Casciotti, K. L.**, C. Buchwald*, A. E. Santoro*, and C. H. Frame*. 2011. Assessment of nitrogen and oxygen isotopic fractionation during nitrification and its expression in the marine environment. *Methods in Enzymology* 486: 253-280.
33. Clough, T. J., L. E. Buckthought, **K. L. Casciotti**, F. M. Keliher, and P. K. Jones. 2011. Nitrous oxide dynamics in a braided river system, New Zealand. *Journal of Environmental Quality* 40: 1532-1541.
32. McIlvin*, M. and **K. L. Casciotti**. 2011. Technical updates to the bacterial method for nitrate isotopic analyses. *Analytical Chemistry* 83: 1850-1856.
31. **Casciotti, K. L.**, M. R. McIlvin*, and C. Buchwald*. 2010. Oxygen isotopic exchange and fractionation during bacterial ammonia oxidation. *Limnology and Oceanography*, 55: 753-762.
30. Rogers*, D. and **K. L. Casciotti**. 2010. Abundance and diversity of archaeal ammonia oxidizers in a coastal groundwater aquifer. *Applied and Environmental Microbiology*, 76: 7938-7948.

29. Frame*, C. H. and **K. L. Casciotti**. 2010. Biogeochemical controls and isotopic signatures of nitrous oxide production by a marine ammonia-oxidizing bacterium. *Biogeosciences* 7: 2695-2709.
28. Santoro*, A., **K. L. Casciotti**, and C. A. Francis. 2010. Activity, abundance, and diversity of nitrifying archaea and bacteria in the central California Current. *Environmental Microbiology*, 12: 1989-2006.
27. Banning*, E. C., **K. L. Casciotti**, and E. B. Kujawinski. 2010. Novel strains isolated from a coastal aquifer suggest a predatory role for flavobacteria. *FEMS Microbiology Ecology* 73: 254-270.
26. Buchwald*, C. and **K. L. Casciotti**. 2010. Oxygen isotopic exchange and fractionation during bacterial nitrite oxidation. *Limnology and Oceanography*, 55: 1064-1074.
25. Samarkin, V.A., M. T. Madigan, M. W. Bowles, **K. L. Casciotti**, J. C. Priscu, C. P. McKay, and S. B. Joye. 2010. Abiotic nitrous oxide emission from the hypersaline Don Juan Pond in Antarctica. *Nature Geoscience* 3: 341-344.
24. McIlvin*, M. R. and **K. L. Casciotti**. 2010. Fully automated system for stable isotopic analyses of dissolved nitrous oxide at natural abundance levels. *Limnology and Oceanography: Methods*, 8: 54-66.
23. **Casciotti, K. L.** 2009. Inverse Kinetic Isotope Fractionation During Bacterial Nitrite Oxidation. *Geochimica et Cosmochimica Acta*, 73: 2061-2076.
22. Higgins, M. B., R. S. Robinson, **K. L. Casciotti**, M. McIlvin*, and A. Pearson. 2009. Determining the nitrogen isotopic composition of porphyrins by the denitrifier method. *Analytical Chemistry* 81(1): 184-192.
21. Priscu, J. C., B. C. Christner, J. E. Dore, M. B. Westley, B. N. Popp, **K. L. Casciotti**, and W. B. Lyons. 2008. Supersaturated N₂O in a perennially ice-covered Antarctic lake: Molecular and stable isotopic evidence for a biogeochemical relict. *Limnology and Oceanography*, 53(6): 2438-2450.
20. Barnes, R. T., P. A. Raymond, and **K. L. Casciotti**. 2008. Dual isotope analyses indicate efficient processing of atmospheric nitrate by forested watersheds in the northeastern U.S. *Biogeochemistry*, 90(1): 15-27.
19. Sigman, D. M., K. L. Karsh, and **K. L. Casciotti**. 2008. Nitrogen Isotopes in the Ocean. In: Steele, J. H., Thorpe, S. A., and Turekian, K. K. (eds) *Encyclopedia of Ocean Sciences* pp. Academic Press, New York.
18. **Casciotti, K. L.**, D. M. Glover, T. Trull, and D. Davies. 2008. Constraints on Nitrogen Cycling at the Subtropical North Pacific Station ALOHA from Isotopic Measurements of Nitrate and Particulate Nitrogen. *Deep Sea Research II*, 55: 1661-1672.
17. Dehairs, F., S. Jacquet, N. Savoye, J. Bishop, B. van Mooy, K. Buesseler, C. Lamborg, M. Elskens, P. Boyd, **K. Casciotti**, and W. Baeyens. 2008. Barium in Twilight Zone Suspended Matter as a Proxy for Particulate Organic Carbon Remineralization: Results from the North Pacific. *Deep Sea Research II*, 55: 1673-1683.
16. Trull, T.W., D. Davies, **K. Casciotti**. 2008. Insights into nutrient assimilation and export in naturally iron-fertilized waters of the Southern Ocean from nitrogen, carbon, and oxygen isotopes. *Deep Sea Research II*, 55: 820-840.
15. **Casciotti, K. L.** and M. R. McIlvin*. 2007. Isotopic analyses of nitrate and nitrite from reference mixtures and application to Eastern Tropical North Pacific waters. *Marine Chemistry*, 107: 184-201.

14. Buesseler, K.O., C. H. Lamborg, P. W. Boyd, P. J. Lam, T. W. Trull, R. R. Bidigare, J. K. Bishop, **K. L. Casciotti**, F. Dehairs, M. Elskens, M. Honda, D. M. Karl, D. A. Siegel, M. W. Silver, D. K. Steinberg, J. Valdes, B. Van Mooy, S. Wilson. 2007. Revisiting Carbon Flux Through the Ocean's Twilight Zone. *Science*, **316**: 567-570.
13. **Casciotti, K. L.**, J. K. Böhlke, M. R. McIlvin*, S. J. Mroczkowski, J. E. Hannon. 2007. Oxygen isotopes in nitrite: analysis, calibration, and equilibration. *Analytical Chemistry*, **79**(6): 2427-2436.
12. McIlvin*, M and **K. L. Casciotti**. 2006. Method for the analysis of $\delta^{18}\text{O}$ in water. *Analytical Chemistry*, **78**: 22377-2381.
11. Ward B. B., J. Granger, M. T. Maldonado, **K. L. Casciotti**, S. Harris, and M. L. Wells. 2005. Denitrification in the Hypolimnion of Permanently Ice-Covered Lake Bonney, Antarctica. *Aquatic Microbial Ecology*, **38** (3): 295-307.
10. **Casciotti, K. L.** and B. B. Ward. 2005. Phylogenetic analysis of nitric oxide reductase gene homologues from aerobic ammonia-oxidizing bacteria. *FEMS Microbiology Ecology*, 52:197-205.
9. C. C. Y. Chang, S. R. Silva, C. Kendall, G. Michalski, **K. L. Casciotti**, and S. Wankel, 2004. Preparation and Analysis of Nitrogen-bearing Compounds in Water for Stable Isotope Ratio Measurement. In: P.A. deGroot (ed) *Handbook of Stable Isotope Analytical Techniques Volume 1*, pp. 305-354.
8. Coplen, T. B., J. K. Böhlke, and **K. L. Casciotti**. 2004. Using dual bacterial denitrification to improve $\delta^{15}\text{N}$ determinations of nitrates containing mass independent ^{17}O . *Rapid Communications in Mass Spectrometry*, **18**: 245-250.
7. **Casciotti, K. L.**, D. M. Sigman, and B. B. Ward. 2003. Linking Diversity and Stable Isotope Fractionation in Ammonia-Oxidizing Bacteria. *Geomicrobiology Journal*, **20**(4): 335-353.
6. **Casciotti, K. L.**, D. M. Sigman, M. Galanter Hastings, J. K. Böhlke, and A. Hilker. 2002. Measurement of the Oxygen Isotopic Composition of Nitrate in Marine and Fresh Waters Using the Denitrifier Method. *Analytical Chemistry*, **74**: 4905-4912.
5. Francis, C.A., **K. L. Casciotti**, and B. M. Tebo. 2002. Localization of Mn(II)-oxidizing activity and the putative multicopper oxidase, MnxG, to the exosporium of the marine *Bacillus* sp. strain SG-1. *Archives of Microbiology* **178**: 450-456.
4. **Casciotti, K. L.** and B. B. Ward. 2001. Dissimilatory Nitrite Reductase Genes in Autotrophic Ammonia-Oxidizing Bacteria. *Applied and Environmental Microbiology*, **67**: 2213-2221.
3. Sigman, D. M., **K. L. Casciotti**, M. Andreani, C. Barford, M. Galanter, J. K. Böhlke. 2001. A Bacterial Method for the Nitrogen Isotopic Analysis of Nitrate in Marine and Fresh Waters. *Analytical Chemistry*, **73**: 4145-4153.
2. Sigman, D. M., and **K. L. Casciotti**. 2001. Nitrogen Isotopes in the Ocean. In: Steele, J. H., Thorpe, S. A., and Turekian, K. K. (eds) *Encyclopedia of Ocean Sciences* pp. 1884-1894. Academic Press, New York.
1. Landry, M. R., S. L. Brown, K. E. Selph, M. R. Abbott, R. M. Letelier, S. Christensen, R. R. Bidigare, and **K. L. Casciotti**. 2001. Initiation of the Spring Phytoplankton Increase in the Antarctic Polar Front Zone at 170° W. *Journal of Geophysical Research-Oceans*, **106** (C7): 13903-13915.

MANUSCRIPTS IN ADVANCED PREPARATION

1. Johnston, D. T., B. C. Gill, A. Masterson, E. Beirne, **K. L. Casciotti**, and W. Berelson. Quantifying the cryptic marine sulfur cycle. Revised, resubmitted to *Nature*.
2. Frame*, C., E. Deal, C. Nevison, and **K. L. Casciotti**. N₂O production in the eastern South Atlantic: isotopic and concentration data. *Global Biogeochemical Cycles*. In revision.

BOOK CHAPTERS:

Tebo, B. M., L. van Waasbergen, **C. A. Francis**, L. M. He, D. B. Edwards, and K. L. Casciotti. 1998. Manganese oxidation by spores of the marine *Bacillus* sp. strain SG-1: Application for the bioremediation of metal pollution. In Y. Le Gal and H.O. Halvorson (Eds.) *New Developments in Marine Biotechnology*. Plenum Press, New York. p.177-180.

MEETING PRESENTATIONS

- Peters*, B., C. Buchwald*, A. Knapp, and **K. L. Casciotti**. Tracking nitrate isotopes along density surfaces in the eastern tropical south Pacific. 2014 Ocean Sciences Meeting, student poster presentation.
- Johnston, D. T., B. C. Gill, A. Masterson, E. Beirne, W. Berelson, and **K. L. Casciotti**. Quantifying the cryptic OMZ S cycle. 2014 Ocean Sciences Meeting, oral presentation.
- Casciotti, K. L.** Nitrogen dynamics in the ocean elucidated from new analytical methods. 2013 Tokyo University of Agriculture and Technology Symposium, INVITED talk.
- Casciotti, K. L.**, C. Buchwald*, and A. Santoro*. A biogeochemical perspective on the formation of the primary nitrite maximum. 2013 International Conference on Nitrification, INVITED plenary talk.
- Casciotti, K. L.**, D. Sigman, M. Hastings, D. Marconi, P. Rafter, A. Weigand, and H. Ren. Sectional nitrate isotope data reveal the extent of low $\delta^{15}\text{N-NO}_3^-$ in the North Atlantic. 2013 Gordon Research Conference in Chemical Oceanography, poster presentation.
- Casciotti, K. L.** Perspectives on nitrogen cycling in oxygen minimum zones from natural abundance NO_3^- and NO_2^- isotope ratio measurements. 2013 Moore Foundation Workshop on Oceanic Oxygen Minimum Zones, INVITED talk.
- Buchwald*, C., A. Santoro*, R. Stanley, and **K. L. Casciotti**. Nitrogen cycling in the secondary nitrite maximum in the Costa Rica Upwelling Dome. 2013 ASLO Aquatic Sciences Meeting, student oral presentation.
- Smith, J. M., **K. L. Casciotti**, F. P. Chavez, C. A. Francis. Relating functional gene markers for ammonia-oxidizing archaea to rates of nitrification across ocean gradients. 2013 ASLO Aquatic Sciences Meeting, student poster presentation.
- Casciotti, K. L.** and C. Buchwald*. Implications of Nitrate and Nitrite Isotopic Measurements for the Mechanisms of Fixed Nitrogen Cycling and Loss from the Peru Oxygen Deficient Zone. 2012 AGU Fall Meeting, INVITED talk.
- Casciotti, K. L.** Sources and Cycling of Marine Nitrous Oxide. 2012 General Meeting of the American Society for Microbiology, INVITED talk.
- Buchwald*, C. and **K. L. Casciotti**. Insights on nitrite turnover times in the ocean from the oxygen isotopes in nitrite. 2012 ASLO Ocean Sciences Meeting, student oral presentation.
- Casciotti, K. L.**, C. Buchwald*, and A. Santoro*. Use of nitrate and nitrite isotopes to study nitrogen cycling in oceanic oxygen deficient zones. 2012 ASLO Ocean Sciences Meeting, INVITED talk.
- Casciotti, K. L.** Kinetic isotopic fractionation during bacterial nitrite oxidation and its expression in the environment. 2012 Gordon Research Conference in Isotopes in Chemical and Biological Processes, INVITED talk.

- Casciotti, K. L.**, A. E. Santoro*, and C. Buchwald*. Stable isotopic fractionation and N₂O production by ammonia-oxidizing bacteria and archaea. 2011 Nitrification Network Conference, INVITED talk.
- Casciotti, K. L.**, C. Buchwald*, A. E. Santoro*, and M. McIlvin. Implications of nitrate and nitrite isotopic measurements from the Peru oxygen deficient zone for the mechanisms of nitrogen cycling and loss. 2011 Gordon Research Conference in Chemical Oceanography, poster presentation.
- Buchwald*, C., A. E. Santoro*, and **K. L. Casciotti**. Nitrite turnover in the primary and secondary nitrite maxima: Insights from the oxygen isotopic composition of nitrite in the Costa Rica upwelling dome. 2011 Gordon Research Conference in Chemical Oceanography, student poster presentation.
- Santoro*, A. E., C. Buchwald*, M. R. McIlvin*, and **K. L. Casciotti**. Nitrous oxide production by marine ammonia-oxidizing archaea. 2011 Gordon Research Conference in Chemical Oceanography, poster presentation.
- Bernhard, J. M., V. P. Edgcomb, **K. L. Casciotti**, M. R. McIlvin*, and D. J. Beaudoin. 2010 International Symposium on Foraminifera, oral presentation.
- Banning*, E. C., **K. L. Casciotti**, and E. B. Kujawinski. Predatory Flavobacteria colonize biofilms and accelerate macronutrient regeneration. 2010 ISME Meeting, student oral presentation.
- Buchwald*, C., **K. L. Casciotti**, M. McIlvin*, and A. Santoro*. Determining the oxygen isotope value of nitrate from nitrification. 2010 ISME meeting, student poster presentation.
- Santoro*, A. E., C. Buchwald*, and **K. L. Casciotti**. Enrichment and characterization of ammonia-oxidizing archaea from the open ocean: Phylogeny and stable isotope fractionation. 2010 ISME meeting, postdoc poster presentation.
- Santoro*, A. E. and **K. L. Casciotti**. Enrichment and characterization of ammonia-oxidizing archaea from the open ocean: Phylogeny and stable isotope fractionation. 2010 Gordon Research Conference in Marine Microbes, postdoc poster presentation.
- Bernhard, J. M., V. P. Edgcomb, **K. L. Casciotti**, M. R. McIlvin*, and D. J. Beaudoin. Denitrification: Not just for prokaryotes anymore? 2010 12th Deep Sea Biology Symposium, poster presentation.
- Casciotti, K.L.**, C. Buchwald*, and M. McIlvin*. Oxygen isotopic fractionation and exchange during bacterial ammonia oxidation. 2009 Gordon Research Conference in Chemical Oceanography, poster presentation.
- Buchwald*, C. and **K. L. Casciotti**. Oxygen isotopic fractionation and exchange during bacterial nitrite oxidation. 2009 Gordon Research Conference in Chemical Oceanography, student poster presentation.
- Casciotti, K.L.** Using natural abundance stable isotopes to tease apart oxidative and reductive fates for nitrite in oxygen deficient zones. 2009 ICoN1 Nitrification Network Conference, INVITED talk.
- Casciotti, K.L.**, S. Sievert, M. McIlvin*, C. Wuchter, and J. Corredor. Nitrification in the Tropical Sponge *Chondrilla nucula*. 2009 ASLO Aquatic Sciences Meeting, poster presentation.
- Rogers*, D. and **K. L. Casciotti**. Functional Roles of Archaea and Bacteria in a Subterranean Estuary as Suggested by Chemical and Molecular Markers. 2009 ASLO Aquatic Sciences Meeting, student oral presentation.
- Frame*, C. and **K. L. Casciotti**. Controls on Nitrous Oxide Yield and Production Mechanisms in a Marine Ammonia-Oxidizing Bacterium. 2009 ASLO Aquatic Sciences Meeting, student poster presentation.

- Buchwald*, C. and **K. L. Casciotti**. Inverse Kinetic Isotope Fractionation of Bacterial Nitrite Oxidation. 2009 ASLO Aquatic Sciences Meeting, student poster presentation.
- Santoro*, A. **Casciotti, K.L.**, and Francis, C. Activity and Abundance of Archaeal and Bacterial Nitrifiers Across a Coastal Transition Zone in the Eastern North Pacific. 2009 ASLO Aquatic Sciences Meeting, postdoc oral presentation.
- Casciotti, K.L.** Coupled isotopic measurements of nitrate and nitrite: new insights into N cycling in oceanic oxygen minimum zones. 2007 GRC Chemical Oceanography, INVITED talk.
- Casciotti, K.L.** Microbial community interactions and N₂O cycling in low O₂ regions. 2006 ASLO Summer Meeting, INVITED talk.
- Casciotti, K. L.**, F. Dehairs, and T. Trull. Nitrogen and Oxygen Isotopes in Nitrate from Contrasting Sites in the Pacific. 2006 Ocean Sciences Meeting, poster presentation.
- McIlvin, M and **K. L. Casciotti**. A Comparison of Two Methods for Nitrate and Nitrite Isotopic Analysis and a New Method for Oxygen Isotopic Analysis of Water. 2006 Ocean Sciences Meeting, poster presentation.
- Casciotti, K. L.** Coupled Isotopic Analyses of Nitrite and Nitrate: A Comparison of New Methods Based on Conversion to N₂O. 2005 SPOT-ON Workshop, poster presentation.
- Casciotti, K. L.** Exploring Nitrogen and Oxygen Isotopic Relationships Among Nitrification Products. 2004 Fall AGU Meeting, poster presentation.
- Casciotti, K. L.**, L.M. Proctor, C.R. Childs, M.T. Peglar, M.A. Voytek, J.D. Kirshtein, S.R. MacAuley, N. Rabalais. Relationship Between Denitrifier Diversity and Rates of Sedimentary Denitrification Potential in the Northern Gulf of Mexico Hypoxic Zone. 2004 International Society for Microbial Ecology Meeting, poster presentation.
- Casciotti, K. L.**, M.A. Voytek, and J.K. Bohlke. Nitrogen Isotopic Fractionation by In-Stream Populations of Ammonia-Oxidizing Bacteria. 2003 Fall AGU Meeting, oral presentation.
- Casciotti, K.L.** Linking Diversity and Stable Isotope Fractionation in Ammonia-Oxidizing Bacteria. 2003 DISCO XVIII Symposium, oral presentation.
- Casciotti, K. L.**, D. M. Sigman, and B. B. Ward. Linking Diversity and Stable Isotope Fractionation in Ammonia-Oxidizing Bacteria. 2002 Fall AGU Meeting, INVITED oral presentation,
- Casciotti, K. L.**, D. M. Sigman, and B. B. Ward. Isotope Signatures for N₂O Production by Marine Ammonia-Oxidizing Bacteria. 2002 Ocean Sciences Meeting, poster presentation.
- Casciotti, K. L.**, D. M. Sigman, and B. B. Ward. Isotope Effects for Ammonia Oxidation and Nitrite Reduction by Ammonia-Oxidizing Bacteria. 2001 Gordon Research Conference in Chemical Oceanography, poster presentation.
- Casciotti, K. L.**, D. M. Sigman, and B. B. Ward. Molecular and Biogeochemical Similarity of Nitrite Reductase in Nitrifying and Denitrifying Bacteria. 2001 Annual Meeting of the American Society of Limnology and Oceanography, oral presentation
- Casciotti, K. L.**, and B. B. Ward. Molecular Characterization of Copper-Containing Nitrite Reductases from Ammonia-Oxidizing Bacteria. 2000 General Meeting of the American Society for Microbiology, poster presentation.
- Casciotti, K. L.**, and B. B. Ward. Dissimilatory Nitrite Reductase Gene from *Nitrosomonas marina*. 1999 Summer Meeting of the Center for Environmental Bioinorganic Chemistry, oral presentation.

Casciotti, K. L., T. Rahn, and M. Wahlen. Stable Isotopes of N and O Nitrous Oxide Emissions from Fertilized Soils. 1997 Fall Meeting of the American Geophysical Union, poster presentation.

INVITED LECTURES

March 20, 2013: Moore Foundation workshop on Oxygen Deficient Marine Waters.
April 20, 2012: Stanford University EES Seminar Series
January 13, 2012: University of California, Santa Cruz Ocean Sciences Seminar
November 11, 2011 Stanford University Isotope Geochemistry course
July 13, 2011: Stanford University SES summer seminar series
March 30, 2011: Stanford University EESS Department seminar
November 8-10, 2010: SOLAS OMZ workshop
May 17, 2010: CIFAR Nitrogen workshop
September 20, 2010: Harvard Earth and Planetary Science Colloquium
May 12, 2009: Princeton University Environmental Geology and Geochemistry Seminar
May 4, 2009: Scripps Institution of Oceanography, UCSD, Earth Section Seminar
April 8, 2009: Stanford University, Earth and Environmental Systems Science Seminar
June 22-28 2008: Agouon/CMORE course in Microbial Oceanography
February 2008: USC Marine Environmental Biology Seminar
February 2008: Stanford University Earth and Environmental Systems Science Seminar
August 2007: Gordon Research Conference in Chemical Oceanography
April 2007: MIT Chemical Oceanography Seminar
April 2006: University of Rhode Island GSO Seminar
March 2006: University of Puerto Rico Chemical Oceanography Seminar
March 2005: UMASS Dartmouth SMAST Seminar
March 2005: MIT Chemical Oceanography Seminar
February 2005: Cornell University Biogeochemistry Seminar
September 2003: University of Maryland Department of Geology Seminar

FIELD RESEARCH PARTICIPATION

Sept. 20 - Oct. 18, 2007	R/V <i>Roger Revelle</i> , Arabian Sea; Goa, India to Goa, India.
March 3-15, 2006	Sponge Biodiversity and Biogeochemistry, Puerto Rico.
Oct 18-Nov 10, 2005	R/V <i>Knorr</i> , Peru Upwelling and OMZ; Arica to Manzanillo.
June 20-July 10, 2004	R/V <i>Kilo Moana</i> , VERTIGO I
Nov 09-Dec 14, 2000	Denitrification in Lake Bonney, Antarctica.
Jun 12-16, 1998	R/V <i>Robert Gordon Sproul</i> , Chief scientist, Southern California Bight.
Oct 20-Nov 24, 1997	R/V <i>Roger Revelle</i> , U.S. JGOFS AESOPS Survey I Cruise, Antarctic Polar Front.
Aug 27-Sep 01, 1995	R/V <i>Moana Wave</i> , Hawaii Ocean Time Series Cruise 65.
Jul 28-Aug 02, 1995	R/V <i>Maurice Ewing</i> , Hawaii Ocean Time Series Cruise 64.
Aug 20-Sept 17, 1994	Field assistant for paleomagnetic sample collection in Namibia.
Jul 23-Jul 28, 1994	R/V <i>Moana Wave</i> , Hawaii Ocean Time Series Cruise 55.
Jun 17-Jun 22, 1994	R/V <i>Moana Wave</i> , Hawaii Ocean Time Series Cruise 54.

FUNDED GRANTS:

19. Project Title: Collaborative Research: GEOTRACES Peru-Tahiti Nitrogen Isotope Measurements
Source of Support: NSF/Chemical Oceanography
Award Amount: \$388,147 to Casciotti (Lead PI)
Period Covered by Award: 03/01/2013 – 02/29/2016
Co-Investigators: Mark Altabet (UMass Dartmouth), Meredith Hastings (Brown)

18. Project Title: Expression of Microbial Nitrification in the Stable Isotopic Systematics of Oceanic Nitrite and Nitrate
Source of Support: NSF/Chemical Oceanography
Award Amount: \$727,317 to Casciotti (Sole PI)
Period Covered by Award: 04/01/2011 – 03/31/2015
Co-Investigators: none
17. Project Title: NASA: Distinguishing Biotic and Abiotic Nitrous Oxide Sources in Mars Analog Brines, Rock, and Soils in the Dry Valleys, Antarctica.
Source of Support: NASA/Astrobiology: Exobiology and Evolutionary Biology
Award Amount: \$ 231,619 to Casciotti
Period Covered by Award: 09/15/10 – 09/14/13
Co-Investigators: Samantha Joye (Lead PI, University of Georgia)
16. Project Title: Collaborative Research: GEOTRACES Atlantic Section Nitrate Isotope Measurements
Source of Support: NSF/Chemical Oceanography
Award Amount: \$209,373 to Casciotti
Period Covered by Award: 03/01/2011 – 10/231/2014
Co-Investigators: Daniel Sigman (Lead PI, Princeton University), Meredith Hastings (Brown)
15. Project Title: Physiological diversity of marine *Crenarchaea*
Source of Support: WHOI Ocean Life Institute
Award Amount: \$38,700 to Casciotti (Sole PI)
Period Covered by Award: 09/01/2009 – 08/31/2011
Co-Investigators: none
14. Project Title: Collaborative Research: Documenting N₂ fixation in N deficient waters of the Eastern Tropical South Pacific
Source of Support: NSF/Biological Oceanography
Award Amount: \$69,353 to Casciotti
Period Covered by Award: 07/01/2009 – 06/30/2012
Co-Investigators: Doug Capone (USC), William Berelson (USC), Dennis Hansell (University of Miami, RSMAS), Angela Knapp (University of Miami, RSMAS)
13. Project Title: The Role of Archaea in Carbon and Nitrogen Cycling in the Eastern Tropical Pacific.
Source of Support: WHOI Interdisciplinary Awards
Award Amount: \$97,532 to Casciotti (Lead PI)
Period Covered by Award: 06/01/2008 – 05/31/2009
Co-Investigators: Stefan Sievert (WHOI)
12. Project Title: GEOTRACES: Intercalibration of Nitrate Isotope Analyses and Sample Preservation Techniques
Source of Support: NSF/Chemical Oceanography
Award Amount: \$178,124 to Casciotti (Sole PI)
Period Covered by Award: 04/01/2008 – 09/30/2010
Co-Investigators: none
11. Project Title: MIP: Denitrification: Not Just for Prokaryotes Anymore?
Source of Support: NSF/Microbial Interactions and Processes
Award Amount: \$499,094

Period Covered by Award: 09/15/2007 – 08/31/2011
Co-Investigators: Joan Bernhard (Lead PI, WHOI), Virginia Edgcomb (WHOI)

10. Project Title: SGER: Exploration of Nitrite Isotopes and their Link to Nitrogen
Biogeochemistry in the Arabian Sea Oxygen Minimum Zone
Source of Support: NSF/Chemical Oceanography
Award Amount: \$52,000 to Casciotti (Sole PI)
Period Covered by Award: 09/15/2007 – 08/31/2008
Co-Investigators: none

9. Project Title: Geomicrobiology of an anthropogenically altered subterranean estuary.
Source of Support: WHOI Coastal Ocean Institute
Award Amount: \$74,269 to Casciotti (Sole PI)
Period Covered by Award: 05/15/2007 – 05/14/2009
Co-Investigators: none

8. Project Title: The Isotope Exchange Hypothesis: Nitrification and the Oxygen Isotopic
Signatures in Nitrate, Nitrite, and Nitrous Oxide
Source of Support: NSF/Chemical Oceanography
Award Amount: \$452,017 to Casciotti (Lead PI)
Period Covered by Award: 09/01/2005 – 08/31/2009
Co-Investigators: John Waterbury (WHOI)

7. Project Title: Mechanisms of Dinitrogen Production in Coastal Permeable Sediments
Source of Support: NSF/Chemical Oceanography
Award Amount: \$599,895
Period Covered by Award: 09/01/2005 – 08/31/2008
Co-Investigators: Matthew Charette (Lead, WHOI), Katrina Edwards (USC)

6. Project Title: Collaborative Research: MIP: Physiology and Molecular Ecology of
Thermophilic Nitrate-reducing Microorganisms at Deep-sea Hydrothermal Vents
Source of Support: NSF/Microbial Interactions and Processes/Microbial Observatories
Award Amount: \$100,576
Period Covered by Award: 06/15/2005 – 05/31/2008
Co-Investigators: Constantino Vetriani (Lead, Rutgers), Stefan Sievert (WHOI)

5. Project Title: Biogeochemistry of Nitrous Oxide Cycling in the Eastern Tropical South Pacific
Source of Support: WHOI Access to the Sea
Award Amount: \$74,593 to Casciotti (Lead PI)
Period Covered by Award: 06/01/2005 – 05/31/2007
Co-Investigators: James Moffett (WHOI)

4. Project Title: Sponge-associated microbial communities: Biodiversity and Biogeochemistry
Source of Support: WHOI Ocean Life Institute
Award Amount: \$74,985
Period Covered by Award: 05/16/2005 – 05/15/2007
Co-Investigators: Stefan Sievert (WHOI)

3. Project Title: A New Isotope Array for Linking Microbial Diversity and Function
Source of Support: WHOI Green Technology
Award Amount: \$49,852 to Casciotti (Sole PI)
Period Covered by Award: 12/01/2004 – 11/30/2005
Co-Investigators: none

2. Project Title: Microbial Genome Sequencing: The Complete Genome Sequence of a Mini Consortium of Marine Ammonia Oxidizers

Source of Support: NSF/Microbial Genome Sequencing Program

Award Amount: \$807,922

Period Covered by Award: 10/01/2004 – 10/31/2009

Co-Investigators: Martin Klotz (Lead, University of Louisville), Bess Ward (Princeton University), John Heidelberg (JGI)

1. Project Title: Matching Gene Expression with Stable Isotopic Signatures in Marine Ammonia-oxidizing Bacteria

Source of Support: WHOI Mellon Foundation

Award Amount: \$49,313 to Casciotti (Sole PI)

Period Covered by Award: 06/01/2004 – 05/31/2005

Co-Investigators: none