



Karen Casciotti

Associate Dean for Facilities and Shared Labs, Professor of Oceans, of Earth System Science and Senior Fellow at the Woods Institute for the Environment

 Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Professor, Oceans
- Senior Fellow, Stanford Woods Institute for the Environment
- Professor, Earth System Science
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Professor, Oceans Department, Stanford University, (2022- present)
- Professor, ESS Department, Stanford University, (2020- present)
- Victoria and Roger Sant Director, Earth Systems Program, Stanford University, (2019-2023)
- Associate Professor, ESS Department, Stanford University, (2015-2020)
- Assistant Professor, EESS Department, Stanford University, (2011-2015)
- Associate Scientist, MC&G Department, Woods Hole Oceanographic Institution, (2008-2010)
- Assistant Scientist, MC&G Department, Woods Hole Oceanographic Institution, (2004-2008)
- NRC Postdoctoral Fellow, US Geological Survey, Reston VA, (2002-2004)

HONORS AND AWARDS

- John Hayes Award, Geochemical Society (2020)
- Terman Fellow, Stanford University (2011)
- WHOI Coastal Ocean Institute Fellow, Woods Hole Oceanographic Institute (WHOI) (2008-2011)
- NRC Postdoctoral Research Associateship, National Research Council (2002)
- Harold W. Dodds Honorary Fellowship, Princeton University (2001)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Co-Chair, GEOTRACES Scientific Steering Committee, GEOTRACES (2020 - present)
- Chair, Gordon Research Conference in Chemical Oceanography (2017), GRC (2015 - 2017)
- Standards and Intercalibration Committee member, GEOTRACES (2014 - present)
- Ocean Sciences Meeting Program Committee Co-Chair (2016), American Geophysical Union (2014 - 2016)
- Executive Committee, Ocean Sciences Section, American Geophysical Union (2013 - 2016)
- Ocean Sciences Meeting Program Committee Member (2014), American Geophysical Union (2013 - 2016)

- Vice-Chair, Gordon Research Conference in Chemical Oceanography (2015), GRC (2013 - 2015)
- GEOTRACES Steering Committee member, US GEOTRACES (2012 - 2017)
- Associate Editor, Marine Chemistry (2009 - 2020)
- Intercalibration coordinator for GEOTRACES nitrate isotope measurements, GEOTRACES (2007 - present)
- Associate Editor, Limnology and Oceanography Methods (2006 - 2016)

PROFESSIONAL EDUCATION

- Ph.D., Princeton University , Geosciences (2002)
- M.S., Princeton University , Geosciences (1999)
- M.S., UCSD Scripps Institution of Oceanography , Oceanography (1998)
- B.S., California Institute of Technology , Environmental Engineering Science (1995)

LINKS

- Lab Website: <http://nitrogen.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research

My research focuses on nitrogen cycle biogeochemistry, including how nitrate, nitrite, and nitrous oxide (N₂O) are produced and consumed in ocean waters. Nitrate and nitrite are important nutrients for marine photosynthesis, and N₂O is a climatically important trace gas. I take an interdisciplinary approach to these questions, applying tools from stable isotope geochemistry, geochemical modeling, microbiology and molecular biology.

Teaching

I teach Marine Chemistry (EESS 152/252), Marine Stable Isotopes (EESS 249), and co-teach Measurements in Earth Systems (EESS 212)

Professional Activities

Executive Committee AGU/Ocean Sciences Section 2013-present; Program Committee for the Ocean Sciences Meeting in 2014 and Co-Chair in 2016; US GEOTRACES Steering Committee January 2012-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, 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.

Teaching

COURSES

2025-26

- Current Topics in Chemical Oceanography: OCEANS 115, OCEANS 215 (Win)
- Marine Chemistry: EARTHSYS 152, EARTHSYS 252, ESS 152, ESS 252, OCEANS 152, OCEANS 252 (Aut)
- Quals Prep Workshop: OCEANS 304 (Win)
- Quals Prep Writing Workshop: OCEANS 303 (Aut)
- Tinkering in Marine Science: OCEANS 165, OCEANS 265 (Spr)

2024-25

- Managing Your PhD: OCEANS 301 (Aut)
- Marine Chemistry: EARTHSYS 152, EARTHSYS 252, ESS 152, ESS 252, OCEANS 152, OCEANS 252 (Aut)
- Marine Stable Isotopes: ESS 249, OCEANS 249 (Win)
- Quals Prep Workshop: OCEANS 304 (Win)
- Quals Prep Writing Workshop: OCEANS 303 (Aut)
- Scientific Communications: An Introduction: OCEANS 305 (Spr)
- Tinkering in Marine Science: OCEANS 165, OCEANS 265 (Spr)

2023-24

- Get to Know Your Oceans: OCEANS 300A (Aut)
- Nitrogen in the Marine Environment: ESS 275, OCEANS 275 (Aut)

2022-23

- Biology and Global Change: BIO 117, EARTHSYS 111, EARTHSYS 217, ESS 111 (Win)
- Marine Chemistry: EARTHSYS 152, EARTHSYS 252, ESS 152, ESS 252 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Jessica Bullington, Matthew Illing, Alexy Khrizman, Emily Paris, Claudette Proctor, Rebecca Salcedo, Benjamin Shapero

Doctoral Dissertation Advisor (AC)

Luke Calderaro, Lev Romashkov, Lucy Webb

Doctoral (Program)

Melea Emunah, Hanif Sulaiman

Publications

PUBLICATIONS

- **Distinguishing the Isotopic Signals of Nitrate Assimilation and Denitrification Along the GEOTRACES GP15 Pacific Meridional Transect** *JOURNAL OF GEOPHYSICAL RESEARCH-OCEANS*
Marconi, D., Sigman, D. M., Casciotti, K. L., Lawrence, R. M., Wang, W., Oleynik, S., Martinez-Garcia, A.
2025; 130 (6)
- **The Effects of Biogeochemistry and Water Mass Mixing on the Distribution of Nitrous Oxide in the Tropical South Pacific** *GLOBAL BIOGEOCHEMICAL CYCLES*
Gluschankoff, N., McGoran, H. J., Casciotti, K. L.

2025; 39 (6)

- **Urea assimilation and oxidation support activity of phylogenetically diverse microbial communities of the dark ocean.** *The ISME journal*
Arandia-Gorostidi, N., Jaffe, A. L., Parada, A. E., Kapili, B. J., Casciotti, K. L., Salcedo, R. S., Baumas, C. M., Dekas, A. E.
2024
- **Isotopomer labeling and oxygen dependence of hybrid nitrous oxide production** *BIOGEOSCIENCES*
Kelly, C. L., Travis, N. M., Baya, P., Frey, C., Sun, X., Ward, B. B., Casciotti, K. L.
2024; 21 (14): 3215-3238
- **ADVANCES IN UNDERSTANDING THE MARINE NITROGEN CYCLE IN THE GEOTRACES ERA** *OCEANOGRAPHY*
Casciotti, K. L., Marshall, T. A., Fawcett, S. E., Knapp, A. N.
2024; 37 (2): 85-101
- **Testing the influence of light on nitrite cycling in the eastern tropical North Pacific** *BIOGEOSCIENCES*
Travis, N. M., Kelly, C. L., Casciotti, K. L.
2024; 21 (8): 1985-2004
- **Shifts in the Isotopic Composition of Nitrous Oxide Between El Nino and La Nina in the Eastern Tropical South Pacific** *GLOBAL BIOGEOCHEMICAL CYCLES*
Gluschankoff, N., Santoro, A. E., Buchwald, C., Casciotti, K. L.
2023; 37 (10)
- **Mixed Archaeal Production and Nitrifier Denitrification Dominate N_2O Production in the East China Sea: Insights From Isotopocule and Hydroxylamine Analyses** *JOURNAL OF GEOPHYSICAL RESEARCH-OCEANS*
Gu, X., Wang, L., Casciotti, K. L., Xin, Y., Liu, S., Zhang, G.
2023; 128 (8)
- **Light, ammonium, pH, and phytoplankton competition as environmental factors controlling nitrification** *LIMNOLOGY AND OCEANOGRAPHY*
Proctor, C., Coupel, P., Casciotti, K., Tremblay, J., Zakem, E., Arrigo, K. R., Mills, M. M.
2023
- **pyisotopomer: A Python package for obtaining intramolecular isotope ratio differences from mass spectrometric analysis of nitrous oxide isotopocules.** *Rapid communications in mass spectrometry : RCM*
Kelly, C. L., Manning, C., Frey, C., Kaiser, J., Gluschankoff, N., Casciotti, K. L.
2023: e9513
- **Nitrite cycling in the primary nitrite maxima of the eastern tropical North Pacific** *BIOGEOSCIENCES*
Travis, N. M. M., Kelly, C. L. L., Mulholland, M. R. R., Casciotti, K. L. L.
2023; 20 (2): 325-347
- **Epipelagic nitrous oxide production offsets carbon sequestration by the biological pump** *NATURE GEOSCIENCE*
Wan, X. S. S., Sheng, H., Dai, M., Casciotti, K. L. L., Church, M. J. J., Zou, W., Liu, L., Shen, H., Zhou, K., Ward, B. B. B., Kao, S.
2022
- **Kinetics of nitrous oxide production from ammonia oxidation in the Eastern Tropical North Pacific** *LIMNOLOGY AND OCEANOGRAPHY*
Frey, C., Sun, X., Szemlerski, L., Casciotti, K. L., Garcia-Robledo, E., Jayakumar, A., Kelly, C. L., Lehmann, M. F., Ward, B. B.
2022
- **Coincident Biogenic Nitrite and pH Maxima Arise in the Upper Anoxic Layer in the Eastern Tropical North Pacific** *GLOBAL BIOGEOCHEMICAL CYCLES*
Cinay, T., Dumit, D., Woosley, R. J., Boles, E. L., Kwiecinski, J., Mullen, S., Tamasi, T. J., Wolf, M. J., Kelly, C. L., Travis, N. M., Casciotti, K. L., Babbitt, A. R.
2022; 36 (12)
- **The Angola Gyre is a hotspot of dinitrogen fixation in the South Atlantic Ocean** *COMMUNICATIONS EARTH & ENVIRONMENT*
Marshall, T., Granger, J., Casciotti, K. L., Dahnke, K., Emeis, K., Marconi, D., McIlvin, M. R., Noble, A. E., Saito, M. A., Sigman, D. M., Fawcett, S. E.
2022; 3 (1)
- **Identifying the Sources and Drivers of Nitrous Oxide Accumulation in the Eddy-Influenced Eastern Tropical North Pacific Oxygen-Deficient Zone** *GLOBAL BIOGEOCHEMICAL CYCLES*

- Monreal, P. J., Kelly, C. L., Travis, N. M., Casciotti, K. L.
2022; 36 (6)
- **Abiotic Nitrous Oxide Production From Sediments and Brine of Don Juan Pond, Wright Valley Antarctica, at Mars Analog Temperatures (-40 degrees C)** *GEOPHYSICAL RESEARCH LETTERS*
Schutte, C. A., Samarkin, V. A., Bowles, M. W., Peters, B., Casciotti, K. L., Madigan, M. T., Joye, S. B.
2022; 49 (3)
 - **Protocols for Assessing Transformation Rates of Nitrous Oxide in the Water Column** *FRONTIERS IN MARINE SCIENCE*
Bourbonnais, A., Frey, C., Sun, X., Bristow, L. A., Jayakumar, A., Ostrom, N. E., Casciotti, K. L., Ward, B. B.
2021; 8
 - **Nitrification and Nitrous Oxide Production in the Offshore Waters of the Eastern Tropical South Pacific** *GLOBAL BIOGEOCHEMICAL CYCLES*
Santoro, A. E., Buchwald, C., Knapp, A. N., Berelson, W. M., Capone, D. G., Casciotti, K. L.
2021; 35 (2)
 - **Quantifying Nitrous Oxide Cycling Regimes in the Eastern Tropical North Pacific Ocean With Isotopomer Analysis** *Global Biogeochemical Cycles*
Kelly, C. L., Travis, N. M., Baya, P. A., Casciotti, K. L.
2021; 35 (2): e2020GB006637
 - **Microbial N₂O consumption in and above marine N₂O production hotspots.** *The ISME journal*
Sun, X., Jayakumar, A., Tracey, J. C., Wallace, E., Kelly, C. L., Casciotti, K. L., Ward, B. B.
2020
 - **Vertical stratification and stability of biogeochemical processes in the deep saline waters of Lake Vanda, Antarctica** *LIMNOLOGY AND OCEANOGRAPHY*
Schutte, C. A., Samarkin, V. A., Peters, B., Madigan, M. T., Bowles, M., Morgan-Kiss, R., Casciotti, K., Joye, S.
2020; 65 (3): 569–81
 - **Amperometric sensor for nanomolar nitrous oxide analysis.** *Analytica chimica acta*
Damgaard, L. R., Kelly, C. n., Casciotti, K. n., Ward, B. B., Revsbech, N. P.
2020; 1101: 135–40
 - **Distribution of Concentration and Stable Isotopic Composition of N₂O in the Shelf and Slope of the Northern South China Sea: Implications for Production and Emission** *JOURNAL OF GEOPHYSICAL RESEARCH-OCEANS*
Zhang, G., Liu, S., Casciotti, K. L., Forbes, M. S., Gu, X., Ren, Y., Zheng, W.
2019; 124 (8): 6218–34
 - **Evidence for Microbial Mediated NO₃- Cycling Within Floodplain Sediments During Groundwater Fluctuations** *FRONTIERS IN EARTH SCIENCE*
Bouskill, N. J., Conrad, M. E., Bill, M., Brodie, E. L., Cheng, Y., Hobson, C., Forbes, M., Casciotti, K. L., Williams, K. H.
2019; 7
 - **Dual nitrogen and oxygen isotope fractionation during anaerobic ammonium oxidation by anammox bacteria.** *The ISME journal*
Kobayashi, K., Makabe, A., Yano, M., Oshiki, M., Kindaichi, T., Casciotti, K. L., Okabe, S.
2019
 - **Modeling oceanic nitrate and nitrite concentrations and isotopes using a 3-D inverse N cycle model** *BIOGEOSCIENCES*
Martin, T. S., Primeau, F., Casciotti, K. L.
2019; 16 (2): 347–67
 - **An N isotopic mass balance of the Eastern Tropical North Pacific oxygen deficient zone**
Fuchsman, C. A., Devol, A. H., Casciotti, K. L., Buchwald, C., Chang, B. X., Horak, R. E. A.
PERGAMON-ELSEVIER SCIENCE LTD.2018: 137–47
 - **Estimating fixed nitrogen loss and associated isotope effects using concentration and isotope measurements of NO₃-, NO₂-, and N₂ from the Eastern Tropical South Pacific oxygen deficient zone**
Peters, B., Horak, R., Devol, A., Fuchsman, C., Forbes, M., Mordy, C. W., Casciotti, K. L.
PERGAMON-ELSEVIER SCIENCE LTD.2018: 121–36

- **The GEOTRACES Intermediate Data Product 2017** *CHEMICAL GEOLOGY*
Schlitzer, R., Anderson, R. F., Dodas, E., Lohan, M., Geibere, W., Tagliabue, A., Bowie, A., Jeandel, C., Maldonado, M. T., Landing, W. M., Cockwell, D., Abadie, C., Abouchami, et al
2018; 493: 210–23
- **Preliminary assessment of stable nitrogen and oxygen isotopic composition of USGS51 and USGS52 nitrous oxide reference gases and perspectives on calibration needs** *RAPID COMMUNICATIONS IN MASS SPECTROMETRY*
Ostrom, N. E., Gandhi, H., Coplen, T. B., Toyoda, S., Bohlke, J. K., Brand, W. A., Casciotti, K. L., Dyckmans, J., Giesemann, A., Mohn, J., Well, R., Yu, L., Yoshida, et al
2018; 32 (15): 1207–14
- **Ammonia-oxidizing bacteria are the primary N₂O producers in an ammonia-oxidizing archaea dominated alkaline agricultural soil** *ENVIRONMENTAL MICROBIOLOGY*
Meinhardt, K. A., Stopnisek, N., Pannu, M. W., Strand, S. E., Fransen, S. C., Casciotti, K. L., Stahl, D. A.
2018; 20 (6): 2195–2206
- **Nitrogen and oxygen isotope measurements of nitrate along the US GEOTRACES Eastern Pacific Zonal Transect (GP16) yield insights into nitrate supply, remineralization, and water mass transport**
Peters, B. D., Lam, P. J., Casciotti, K. L.
ELSEVIER SCIENCE BV.2018: 137–50
- **Water mass analysis of the 2013 US GEOTRACES eastern Pacific zonal transect (GP16)**
Peters, B. D., Jenkins, W. J., Swift, J. H., German, C. R., Moffett, J. W., Cutter, G. A., Brzezinski, M. A., Casciotti, K. L.
ELSEVIER SCIENCE BV.2018: 6–19
- **Tropical Dominance of N-2 Fixation in the North Atlantic Ocean** *GLOBAL BIOGEOCHEMICAL CYCLES*
Marconi, D., Sigman, D. M., Casciotti, K. L., Campbell, E. C., Weigand, M., Fawcett, S. E., Knapp, A. N., Rafter, P. A., Ward, B. B., Haug, G. H.
2017; 31 (10): 1608–23
- **Paired N and O isotopic analysis of nitrate and nitrite in the Arabian Sea oxygen deficient zone** *DEEP-SEA RESEARCH PART I-OCEANOGRAPHIC RESEARCH PAPERS*
Martin, T. S., Casciotti, K. L.
2017; 121: 121-131
- **Multiple metabolisms constrain the anaerobic nitrite budget in the Eastern Tropical South Pacific** *GLOBAL BIOGEOCHEMICAL CYCLES*
Babbin, A. R., Peters, B. D., Mordy, C. W., Widner, B., Casciotti, K. L., Ward, B. B.
2017; 31 (2): 258-271
- **Controls of nitrogen cycling evaluated along a well-characterized climate gradient.** *Ecology*
von Sperber, C., Chadwick, O. A., Casciotti, K. L., Peay, K. G., Francis, C. A., Kim, A. E., Vitousek, P. M.
2017
- **Hydrothermal impacts on trace element and isotope ocean biogeochemistry** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
German, C. R., Casciotti, K. A., Dutay, J., Heimburger, L. E., Jenkins, W. J., Measures, C. I., Mills, R. A., Obata, H., Schlitzer, R., Tagliabue, A., Turner, D. R., Whitby, H.
2016; 374 (2081)
- **Nitrite isotopes as tracers of marine N cycle processes.** *Philosophical transactions. Series A, Mathematical, physical, and engineering sciences*
Casciotti, K. L.
2016; 374 (2081)
- **Nitrite isotopes as tracers of marine N cycle processes** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
Casciotti, K. L.
2016; 374 (2081)
- **Vertical modeling of the nitrogen cycle in the eastern tropical South Pacific oxygen deficient zone using high-resolution concentration and isotope measurements** *GLOBAL BIOGEOCHEMICAL CYCLES*
Peters, B. D., Babbin, A. R., Lettmann, K. A., Mordy, C. W., Ulloa, O., Ward, B. B., Casciotti, K. L.
2016; 30 (11): 1661-1681

- **Differential N₂O dynamics in two oxygen-deficient lake basins revealed by stable isotope and isotopomer distributions** *LIMNOLOGY AND OCEANOGRAPHY*
Wenk, C. B., Frame, C. H., Koba, K., Casciotti, K. L., Veronesi, M., Niemann, H., Schubert, C. J., Yoshida, N., Toyoda, S., Makabe, A., Zopfi, J., Lehmann, M. F.
2016; 61 (5): 1735-1749
- **Variable Nitrification Rates Across Environmental Gradients in Turbid, Nutrient-Rich Estuary Waters of San Francisco Bay** *ESTUARIES AND COASTS*
Damashek, J., Casciotti, K. L., Francis, C. A.
2016; 39 (4): 1050-1071
- **Nitrogen and oxygen isotopic fractionation during microbial nitrite reduction** *LIMNOLOGY AND OCEANOGRAPHY*
Martin, T. S., Casciotti, K. L.
2016; 61 (3): 1134-1143
- **Low rates of nitrogen fixation in eastern tropical South Pacific surface waters** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Knapp, A. N., Casciotti, K. L., Berelson, W. M., Prokopenko, M. G., Capone, D. G.
2016; 113 (16): 4398-4403
- **Nitrogen and Oxygen Isotopic Studies of the Marine Nitrogen Cycle.** *Annual review of marine science*
Casciotti, K. L.
2016; 8: 379-407
- **Nitrogen and Oxygen Isotopic Studies of the Marine Nitrogen Cycle** *ANNUAL REVIEW OF MARINE SCIENCE, VOL 8*
Casciotti, K. L.
2016; 8: 379-407
- **Nitrate isotope distributions on the US GEOTRACES North Atlantic cross-basin section: Signals of polar nitrate sources and low latitude nitrogen cycling** *MARINE CHEMISTRY*
Marconi, D., Weigand, M. A., Rafter, P. A., McIlvin, M. R., Forbes, M., Casciotti, K. L., Sigman, D. M.
2015; 177: 143-156
- **Nitrogen cycling in the secondary nitrite maximum of the eastern tropical North Pacific off Costa Rica** *GLOBAL BIOGEOCHEMICAL CYCLES*
Buchwald, C., Santoro, A. E., Stanley, R. H., Casciotti, K. L.
2015; 29 (12): 2061-2081
- **Intense nitrogen cycling in permeable intertidal sediment revealed by a nitrous oxide hot spot** *GLOBAL BIOGEOCHEMICAL CYCLES*
Schutte, C. A., Joye, S. B., Wilson, A. M., Evans, T., Moore, W. S., Casciotti, K.
2015; 29 (10): 1584-1598
- **Aspects of the marine nitrogen cycle of the Chukchi Sea shelf and Canada Basin** *DEEP-SEA RESEARCH PART II-TOPICAL STUDIES IN OCEANOGRAPHY*
Brown, Z. W., Casciotti, K. L., Pickart, R. S., Swift, J. H., Arrigo, K. R.
2015; 118: 73-87
- **Stable Isotopes and Iron Oxide Mineral Products as Markers of Chemodenitrification** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Jones, L. C., Peters, B., Pacheco, J. S., Casciotti, K. L., Fendorf, S.
2015; 49 (6): 3444-3452
- **N₂O production in the eastern South Atlantic: Analysis of N₂O stable isotopic and concentration data** *GLOBAL BIOGEOCHEMICAL CYCLES*
Frame, C. H., Deal, E., Nevison, C. D., Casciotti, K. L.
2014; 28 (11): 1262-1278
- **Interlaboratory assessment of nitrous oxide isotopomer analysis by isotope ratio mass spectrometry and laser spectroscopy: current status and perspectives** *RAPID COMMUNICATIONS IN MASS SPECTROMETRY*
Mohn, J., Wolf, B., Toyoda, S., Lin, C., Liang, M., Brueggemann, N., Wissel, H., Steiker, A. E., Dyckmans, J., Szewc, L., Ostrom, N. E., Casciotti, K. L., Forbes, et al
2014; 28 (18): 1995-2007

- **Placing an upper limit on cryptic marine sulphur cycling** *NATURE*
Johnston, D. T., Gill, B. C., Masterson, A., Beirne, E., Casciotti, K. L., Knapp, A. N., Berelson, W.
2014; 513 (7519): 530-?
- **Differential contributions of archaeal ammonia oxidizer ecotypes to nitrification in coastal surface waters.** *ISME journal*
Smith, J. M., Casciotti, K. L., Chavez, F. P., Francis, C. A.
2014; 8 (8): 1704-1714
- **Stable isotope analyses of NO₂⁻, NO₃⁻, and N₂O in the hypersaline ponds and soils of the McMurdo Dry Valleys, Antarctica** *GEOCHIMICA ET COSMOCHIMICA ACTA*
Peters, B., Casciotti, K. L., Samarkin, V. A., Madigan, M. T., Schutte, C. A., Joye, S. B.
2014; 135: 87-101
- **Stable isotopic analyses of NO₂⁻, NO₃⁻, and N₂O in hypersaline ponds and soils of the McMurdo Dry Valleys, Antarctica** *Geochimica et Cosmochimica Acta*
Peters, B., Casciotti, K. L., Samarkin, V. A., Madigan, M. T., Schutte, C. A., Joye, S. B.
2014
- **Differential contributions of archaeal ammonia oxidizer ecotypes to nitrification in coastal surface waters** *ISME Journal*
Smith, J. M., Casciotti, K. L., Chavez, F. P., Francis, C. A.
2014
- **Aspects of the marine nitrogen cycle on the Chukchi Sea shelf and Canada Basin** *Deep Sea Research II*
Browh, Z. W., Casciotti, K. L., Pickart, R. L., Swift, J. H., Arrigo, K. R.
2014
- **Implications of nitrate and nitrite isotopic measurements for the mechanisms of nitrogen cycling in the Peru oxygen deficient zone** *DEEP-SEA RESEARCH PART I-OCEANOGRAPHIC RESEARCH PAPERS*
Casciotti, K. L., Buchwald, C., McIlvin, M.
2013; 80: 78-93
- **Stable Isotopes as Tracers of Anthropogenic Nitrogen Sources, Deposition, and Impacts** *ELEMENTS*
Hastings, M. G., Casciotti, K. L., Elliott, E. M.
2013; 9 (5): 339-344
- **Excess nitrate loads to coastal waters reduces nitrate removal efficiency: mechanism and implications for coastal eutrophication** *ENVIRONMENTAL MICROBIOLOGY*
Lunau, M., Voss, M., Erickson, M., Dziallas, C., Casciotti, K., Ducklow, H.
2013; 15 (5): 1492-1504
- **Isotopic ratios of nitrite as tracers of the sources and age of oceanic nitrite** *NATURE GEOSCIENCE*
Buchwald, C., Casciotti, K. L.
2013; 6 (4): 308-313
- **Measurements of nitrite production in and around the primary nitrite maximum in the central California Current** *BIOGEOSCIENCES*
Santoro, A. E., Sakamoto, C. M., Smith, J. M., Plant, J. N., Gehman, A. L., Worden, A. Z., Johnson, K. S., Francis, C. A., Casciotti, K. L.
2013; 10 (11): 7395-7410
- **Insights on the marine microbial nitrogen cycle from isotopic approaches to nitrification.** *Frontiers in microbiology*
Casciotti, K. L., Buchwald, C.
2012; 3: 356-?
- **Insights on the marine microbial nitrogen cycle from isotopic approaches to nitrification** *FRONTIERS IN MICROBIOLOGY*
Casciotti, K. L., Buchwald, C.
2012; 3
- **Potential importance of physiologically diverse foraminifera in sedimentary nitrate storage and respiration** *Journal of Geophysical Research: Biogeosciences*
Bernhard, J. M., Casciotti, K. L., McIlvin, M. R., Beaudoin, D. J., Visscher, P. T., Edgcomb, V. P.
2012; 117

- **Distribution of anaerobic ammonia-oxidizing bacteria in a subterranean estuary** *Marine Chemistry*
Saenz, J. P., Hopmans, E. C., Rogers, D., Henderson, P., Charette, M. A., Casciotti, K. L., Shouten, S., Sinninghe-Damste, J. S., Eglinton, T. I.
2012; 136-137: 7-13
- **Oxygen isotopic composition of nitrate and nitrite produced by nitrifying co-cultures and natural marine assemblages** *Limnology and Oceanography*
Buchwald, C., Santoro, A., McIlvin, M., Casciotti, K. L.
2012; 57: 1361-1375
- **Denitrification likely catalyzed by endobionts in an allogromiid foraminifer** *Multidisciplinary Journal of Microbial Ecology (ISME Journal)*
Bernhard, J. M., Edgcomb, V. P., Casciotti, K. L., McIlvin, M. R., Beaudoin, D. J.
2012; 6 (5): 951-960
- **Basin-scale input of cobalt, iron, and manganese from the Benguela-Angola front to the South Atlantic Ocean** *Limnology and Oceanography*
Noble, A. E., Lamborg, C. H., Ohnemus, D. C., Lam, P. J., Goepfert, T. J., Measures, C. I., Frame, C. H., Casciotti, K. L., DiTullio, G. R., Jennings, J., Saito, K. A.
2012; 57 (4): 989-1010
- **Isotopic Signature of N₂O Produced by Marine Ammonia-Oxidizing Archaea** *SCIENCE*
Santoro, A. E., Buchwald, C., McIlvin, M. R., Casciotti, K. L.
2011; 333 (6047): 1282-1285
- **Technical Updates to the Bacterial Method for Nitrate Isotopic Analyses** *ANALYTICAL CHEMISTRY*
McIlvin, M. R., Casciotti, K. L.
2011; 83 (5): 1850-1856
- **Enrichment and characterization of ammonia-oxidizing archaea from the open ocean: phylogeny, physiology, and stable isotope fractionation** *Multidisciplinary Journal of Microbial Ecology (ISME Journal)*
Santoro, A. E., Casciotti, K. L.
2011; 5: 1796-1808
- **Nitrous oxide dynamics in a braided river system, New Zealand** *Journal of Environmental Quality*
Clough, T. J., Buckthought, L. E., Casciotti, K. L., Keliher, F. M., Jones, P. K.
2011; 40: 1532-1541
- **Activity, abundance and diversity of nitrifying archaea and bacteria in the central California Current** *ENVIRONMENTAL MICROBIOLOGY*
Santoro, A. E., Casciotti, K. L., Francis, C. A.
2010; 12 (7): 1989-2006
- **Abundance and diversity of archaeal ammonia oxidizers in a coastal groundwater aquifer** *Applied and Environmental Microbiology*
Rogers, D., Casciotti, K. L.
2010; 76: 7938-7948
- **Oxygen isotopic exchange and fractionation during bacterial nitrite oxidation** *Limnology and Oceanography*
Buchwald, C., Casciotti, K. L.
2010; 55: 1064-1074
- **Novel strains isolated from a coastal aquifer suggest a predatory role for flavobacteria** *Federation of European Microbiological Societies (FEMS) Microbiology Ecology*
Banning, E. C., Casciotti, K. L., Kujawinski, E. B.
2010; 73: 254-270
- **Assessment of nitrogen and oxygen isotopic fractionation during nitrification and its expression in the marine environment** *Methods in Enzymology*
Casciotti, K. L., Buchwald, C., Santoro, A. E., Frame, C. H.
2010; 486: 253-280
- **Biogeochemical controls and isotopic signatures of nitrous oxide production by a marine ammonia-oxidizing bacterium** *Biogeosciences*
Frame, C. H., Casciotti, K. L.
2010; 7: 2695-2709

- **Abiotic nitrous oxide emission from the hypersaline Don Juan Pond in Antarctica** *Nature Geoscience*
Samarkin, V. A., Madigan, M. T., Bowles, M. W., Casciotti, K. L., Priscu, J. C., McKay, C. P., Joye, S. B.
2010; 3: 341-344
- **Fully automated system for stable isotopic analyses of dissolved nitrous oxide at natural abundance levels** *Limnology and Oceanography: Methods*
Mcllvain, M. R., Casciotti, K. L.
2010; 8: 54-66
- **Inverse Kinetic Isotope Fractionation During Bacterial Nitrite Oxidation** *Geochimica et Cosmochimica Acta*
Casciotti, K. L.
2009; 73: 2061-2076
- **Determining the nitrogen isotopic composition of porphyrins by the denitrifier method** *Analytical Chemistry*
Higgins, M. B., Robinson, R. S., Casciotti, K. L., Mcllvain, M., Pearson, A.
2009; 81: 184-192
- **Dual isotope analyses indicate efficient processing of atmospheric nitrate by forested watersheds in the northeastern U.S.** *Biogeochemistry*
Barnes, R. T., Raymond, P. A., Casciotti, K. L.
2008; 90: 15-27
- **Nitrogen Isotopes in the Ocean** *Encyclopedia of Ocean Sciences*
Sigman, D. M., Karsh, K. L., Casciotti, K. L.
edited by Steele, J. H., Thorpe, S. A., Turekian, K. K.
Academic Press, New York.2008
- **Supersaturated N₂O in a perennially ice-covered Antarctic lake: Molecular and stable isotopic evidence for a biogeochemical relict** *Limnology and Oceanography*
Priscu, J. C., Christner, B. C., Dore, J. E., Westley, M. B., Popp, B. N., Casciotti, K. L., Lyons, W. B.
2008; 53: 2438-2450
- **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*
Trull, T. W., Davies, D., Casciotti, K. L.
2008; 55: 820-840
- **Barium in Twilight Zone Suspended Matter as a Proxy for Particulate Organic Carbon Remineralization: Results from the North Pacific** *Deep Sea Research II*
Dehairs, F., Jacquet, S., Savoye, N., Bishop, J., van Mooy, B., Buesseler, K., Lamborg, C., Elskens, M., Boyd, P., Casciotti, K., Baeyens, W.
2008; 55: 1673-1683
- **Constraints on Nitrogen Cycling at the Subtropical North Pacific Station ALOHA from Isotopic Measurements of Nitrate and Particulate Nitrogen** *Deep Sea Research II*
Casciotti, K. L., Glover, D. M., Trull, T., Davies, D.
2008; 55: 1661-1672
- **Isotopic analyses of nitrate and nitrite from reference mixtures and application to Eastern Tropical North Pacific waters** *Marine Chemistry*
Casciotti, K. L., Mcllvain, M. R.
2007; 107: 184-201
- **Oxygen isotopes in nitrite: analysis, calibration, and equilibration** *Analytical Chemistry*
Casciotti, K. L., Böhlke, J. K., Mcllvain, M. R., Mroczkowski, S. J., Hannon, J. E.
2007; 79: 2427-2436
- **Revisiting Carbon Flux Through the Ocean's Twilight Zone** *Science*
Buesseler, K. O., Lamborg, C. H., Boyd, P. W., Lam, P. J., Trull, T. W., Bidigare, R. R., Bishop, J. K., Casciotti, K. L., Dehairs, F., Elskens, M., Honda, M., Karl, D. M., Siegel, et al
2007; 316: 567-570
- **Method for the analysis of d18O in water** *Analytical Chemistry*
Mcllvain, M., Casciotti, K. L.

2006; 78: 22377-2381

- **Denitrification in the Hypolimnion of Permanently Ice-Covered Lake Bonney, Antarctica** *Aquatic Microbial Ecology*
Ward, B., Granger, B. J., Maldonado, M. T., Casciotti, K. L., Harris, S., Wells, M. L.
2005; 38: 295-307
- **Phylogenetic analysis of nitric oxide reductase gene homologues from aerobic ammonia-oxidizing bacteria** *Federation of European Microbiological Societies (FEMS) Microbiology Ecology*
Casciotti, K. L., Ward, B. B.
2005; 52: 197-205
- **Using dual bacterial denitrification to improve d15N determinations of nitrates containing mass independent 17O** *Rapid Communications in Mass Spectrometry*
Coplen, T. B., Böhlke, J. K., Casciotti, K. L.
2004; 18: 245-250
- **Preparation and Analysis of Nitrogen-bearing Compounds in Water for Stable Isotope Ratio Measurement** *Handbook of Stable Isotope Analytical Techniques*
Chang, C. Y., Silva, S. R., Kendall, C., Michalski, G., Casciotti, K. L., Wankel, S.
edited by deGroot, P. A.
2004: 305-354
- **Linking Diversity and Stable Isotope Fractionation in Ammonia-Oxidizing Bacteria** *Geomicrobiology Journal*
Casciotti, K. L., Sigman, D. M., Ward, B. B.
2003; 20: 335-353
- **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*
Francis, C. A., Casciotti, K. L., Tebo, B. M.
2002; 178 (6): 450-456
- **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*
Francis, C. A., Casciotti, K. L., Tebo, B. B.
2002; 178: 450-456
- **Measurement of the Oxygen Isotopic Composition of Nitrate in Marine and Fresh Waters Using the Denitrifier Method** *Analytical Chemistry*
Casciotti, K. L., Sigman, D. M., Hastings, M. G., Böhlke, J. K., Hilkert, A.
2002; 74: 4905-4912
- **A Bacterial Method for the Nitrogen Isotopic Analysis of Nitrate in Marine and Fresh Waters** *Analytical Chemistry*
Sigman, D. M., Casciotti, K. L., Andreani, M., Barford, C., Galanter, M., Böhlke, J. K.
2001; 73: 4145-4153
- **Dissimilatory Nitrite Reductase Genes in Autotrophic Ammonia-Oxidizing Bacteria** *Applied and Environmental Microbiology*
Casciotti, K. L., Ward, B. B.
2001; 67: 2213-2221
- **Initiation of the Spring Phytoplankton Increase in the Antarctic Polar Front Zone at 170° W** *Journal of Geophysical Research-Oceans*
Landry, M. R., Brown, S. L., Selph, K. E., Abbott, M. R., Letelier, R. M., Christensen, S., Bidigare, R. R., Casciotti, K. L.
2001; 106: 13903-13915
- **Nitrogen Isotopes in the Ocean** *Encyclopedia of Ocean Sciences*
Sigman, D. M., Casciotti, K. L., Steele, J. H., Thorpe, S. A.
edited by Turekian, K. K.
Academic Press, New York. 2001: 1884-1894