

John A. Baross CV 2/23

School of Oceanography Box 357940
University of Washington
Seattle, WA 98195

Phone: (206) 543-0833
Fax: (206) 543-0275
Email: jbaross@u.washington.edu

Positions:

1995-present Professor, School of Oceanography and The Astrobiology Program, University of Washington
1985-1995 Associate Professor, School of Oceanography, Univ. Washington
1983-1985 Associate Professor, Microbiology and Oceanography, Oregon State University
1977-1983 Assistant Professor, Research, Microbiology and Oceanography, Oregon State University
1975-1977 Research Associate, Microbiology and Oceanography, Oregon State University
1973-1975 Postdoctoral Research Associate, Microbiology, Oregon State University
1973 PhD, University of Washington, Marine Microbiology, College of Fisheries

Honors:

Undergraduate Teaching Award, College of Ocean and Fisheries Sciences, University of Washington (2005)
Fellow, American Academy of Microbiology (1999)
Lifetime National Associate, The National Academy of Sciences (2003)
Recognized through *Thermococcus barossii* (Duffaud, et al., Syst. Appl. Microbiol. 21:40-49, 1998)
Recognized through *Geogemma barossii* (Kashefi K. and D. R. Lovley. Science 301:934, 2003)
NASA Group Achievement Award, *Jupiter Icy Moons Orbiter Science Definition Team*, 2005
NASA Exceptional Scientist Medal (2021)

Membership in Professional Societies

American Academy of Microbiology
American Association for the Advancement of Science (AAAS)
American Society for Microbiology
American Geophysical Union
International Society for the Study of the Origin of Life
The Geochemical Society
International Society for Microbial Ecology (ISME)

Graduate Students Advised

Current Member, Committee for:

Taylor Walton, MS student 2021, MGG Ocean

Past Member, Committee for:

Susan Peters, 1982, MS, Microbiology OSU (Committee chair)
Bruce Monger, 1988, MS, Bio. Ocean.

Susan Neuer, 1988, MS, Biol. Ocean
Marie de Angelis, 1989, PhD, Biol. Ocean. (Committee chair)
Monica Orellana, 1990, PhD, Biol. Ocean.
Joan Cleveland, 1990, PhD, Biol. Ocean.
Mary Ruckelshause, 1990, MS, Fisheries
Ivan Tosques, 1991, MS, Biol. Ocean. (Committee chair)
Ralph Pledger, 1992, PhD, Biol. Ocean. (Committee chair)
James Holden, 1996, PhD, Biol. Ocean (committee chair)
John Landsdown, 1992, PhD, Chem. Ocean.
R. Geyer, 1992, MS, Marine Geology and Geophysics
Graig Cowie, 1992, PhD, Chem. Ocean.
Craig Plante, 1992, PhD, Biol. Ocean.
Miguel Goni, 1993, PhD, Chem. Ocean.
Kimberly Calhoon, 1994, MS, Marine Geology and Geophysics
Ann Conrad, 1993, MS, Marine Geology and Geophysics
Ed Doran, 1995, MS, Biol. Ocean.
John Gosink, 1996, PhD, Microbiology
Elizabeth McLaughlin, 1998, PhD, Chem. Ocean.
Matti McCarthy, 1998, PhD, Chem. Ocean.
Peter Hernes, 1999, PhD, Chem. Ocean.
Patricia Yager, 1997, PhD, Biol. Ocean.
Stephan Archer, 1998, MS, Marine Geology and Geophysics
Karl Rockne, 1997, Ph.D., Civil Engineering
Krista Anders, 1998, PhD, Civil Engineering
Byron Crump, 1999, PhD, Biol. Ocean. (Committee chair)
V. Bhat, 1999, MS, Marine Geology and Geophysics
K. Anders, 2000, PhD, Chem Engineering
Melanie Summit, 2000, PhD, Biol. Ocean. (Committee chair)
Carrie Miller, 2001, MS, Biol. Ocean.
A. Aufdenkampe, 2002, PhD., Chem. Ocean
H. Mellow, 2002, PhD., Chemistry Dept.
Adrienne Huston, 2003, PhD., Biol. Ocean
O. Nercessian, 2003, PhD., University of Brest, Brest, France
Jonathan Kaye, 2004, PhD., Biol. Ocean. (Committee chair)
P. Kim, 2004, PhD, Mathematics
Lisa Gilbert, MG&G (PhD)
Julie Huber, 2004, PhD, Biol. Ocean and Astrobiology (Committee chair)
Matt Schrink, 2005, PhD, Biol. Ocean and Astrobiology (Committee chair)
D. LaRowe, 2006, Geology and Geophysics, U. C. Berkeley (PhD)
Susan Lang, 2006, PhD, Chem. Ocean.
Mausmi Mehta, 2006, PhD, Biol Ocean. (Committee chair)
M. Wery, 2007, Microbiology and Biotechnology (PhD), IFREMER, Centre de Brest,
and Univ. of Brest, Plouzane, France
Zach Adam, 2007, Aeronautical Engineering (MS)
Steve Vance, 2008, Earth and Space Science (PhD)
Mark Claire, 2008, Astronomy and Astrobiology (PhD)

Nathan Ahlgren, 2008, Biol. Ocean. (PhD)
Julie Wright, 2009, Biol. Ocean. (MS)
Min Lin, 2009, (Co-chair with D. Kelley) (MS)
Nick Pinel, 2009, Microbiology and Chemical Engineering (PhD)
Eric Collins, 2010, Biol. Ocean. (PhD)
J. Harnmeijer, 2010, Earth and Space Science and Astrobiology (PhD)
Billy Brazelton, 2010, (Chair) Oceanography and Astrobiology (PhD)
Nick Cowan, 2010 Astronomy and Astrobiology (PhD)
Andrew Opatkiewicz 2010 (Chair) Oceanography and Astrobiology (MS)
Anne Baxter, 2010, Fisheries (MS)
Aaron Goldman 2010, (Co-chair) (Microbiology and Astrobiology) (PhD)
Linda Sauter, 2011, Microbiology and Chemical Engineering (MS)
John Kirkpatrick, 2011, Chem. Ocean and Astrobiology (PhD)
Jesse Colangelo-Lillis, 2012, Biol. Ocean and Astrobiology (MS)
Colleen Durkin, Biol. Ocean, PhD 2012
Rika Anderson, 2013 (Chair) Oceanography and Astrobiology
Kyle Costa 2013, Microbiology and Astrobiology (PhD)
Marcella Ewert Sarmiento, 2013, Biol. Ocean. (PhD)
Jeff Bowman, 2014, Biol. Ocean and Astrobiology (PhD)
Zoe Harrold, 2014, (ES&S) (PhD)
Eva Stueken, 2014, (ES&S and Astrobiology) (PhD)
Monica Riess, 2014, Oceanography MG&G (MS)
Aditya Chopra, 2014 (PhD) Astronomy, Australian National University (co-advisor)
Frederick “Ricky” Dooley 2015 (Biology) (PhD)
Barbara Walter, 2015, Earth and Space Science (MS)
Jonathan Babst, 2015, Earth and Space Science (MS)
Katharine Marshall, 2015, (Biol. Ocean) (PhD)
Vaughn Iverson, 2015, Biol. Ocean. (PhD)
Michael Carlson, 2015, Biol. Ocean (PhD)
Jaclyn Saunders, 2016, Biol. Ocean (PhD)
Evan Firth, 2017, (Biol. Ocean and Astrobiology) (MS)
Chloe Hart, 2018, (ES&S) (PhD)
Jonathan Babst, 2018, (ES&S) (PhD)
Vega Shah, 2018, (Biol. Ocean) (PhD)
Gordon Showalter, 2020, Biol. Ocean and Astrobiology (PhD)
Teresa Whorley, 2021, MGG (PhD)
Zac Cooper, 2022, Biol. Ocean and Astrobiology (PhD)
Addien Wray, 2022, ESS (PhD)
(Member on 6 graduate student graduate committees at Oregon State University)

Others: Stefan Sievert, Fullbright Scholar from Bremen, Germany (1992-1993)
Ken Takai, Rotary Fellow from Kyoto, Japan (1994-1995)
Jan Amand, visiting Post Doctoral Fellow from Washington University, Saint Louis (1997-1998); Craig Moyer, Sabbatical year in my lab (2003-04); Sanjoy Som, UW Astrobiology graduate student (ESS) doing a research rotation in my lab. Hakon Dehle, Post Doctoral Fellow (2008-2009). Aditya Chopra, Post Doctoral Fellow (2016); Rika Anderson, sabbatical 6/2019 – 3/2020.

Committees, Workshops and other Community Activities (2003-present)

- Co-Chair National Research Council (National Academy of Sciences) Committee on the Origins and Evolution of Life, COEL (2000 – 2004)
- Member, Mars Exploration Payload Assessment Group (MEPAG) (2002-03)
- Member, Science Definition Team for Jupiter Icy Moons Orbiter (JIMO) Mission (2003)
- Membership NAI Titan Focus Group (2003-2005)
- Organized and convened “Weird Life” planning session for the National Research Council’s (NAS) Committee on the Origins and Evolution of Life (2002)
- Scientific Organizing Committee, Second Astrobiology Science Conference, NASA Ames Research Center, California (2002)
- Organizing Committee, 3rd Astrobiology Institute General Meeting, Tempe AZ (2003)
- Co-Organize and Co-Chair American Geophysical Union (AGU) session entitled “Terrestrial and Synthetic Environments: Where in the Solar System Can They Take Us?” (2002)
- Organized and convened American Society for Microbiology (ASM) Colloquium entitled “Novel Organisms and Novel Metabolisms; What More Can We expect to Find?” Washington DC, May, 2003
- Co-Organize and Co-Chair Geological Society of America (GSA) session entitled “Submarine Hydrothermal Systems: The Emergence of Geobiology”, Seattle, WA, November, 2003.
- Co-organize and Co-Chair The American Association for the Advancement of Science (AAAS) session on The Lost City Hydrothermal System, Seattle, WA (02/04)
- Chair, National Research Council (National Academy of Sciences) Task Group “The Limits of Carbon Life on Earth and Elsewhere”, 2004-2006
- Organized National Research Council (National Academy of Sciences) Workshop “The Limits of Carbon Life on Earth and Elsewhere” Washington D. C., May 10-11, 2004
- Member, InterRidge (International Ridge) Working Group: “Biogeochemical Interactions at Deep-Sea Vents”, 2004-2007
- Co-organize and Co-Chair American Geophysical Union (AGU) session entitled “Unraveling the ‘Fingerprints’ of Geochemical Processes Recorded in Earth Materials”, Fall meeting, San Francisco, Dec. 13-17, 2004.
- Member, Science Education Advisory Committee, Pacific Science Center, Seattle, WA (2005-2015)
- Lecturer and co-organizer of Vatican Observatory Summer School (VOSS) on Astrobiology, June 15-July 14, 2005, Vatican City, Italy
- Charter Member, Seamount Coordinated Network (NSF), 2004-present
- Chair, Science Advisory Council, International Census of Marine Microorganisms (ICoMM), 2004-2011
- Organizing Committee, International Extremophile Meeting, Tokyo, Japan, Nov. 2005
- Invited participant, “Pale Blue Dot III, Searching for Life on Distant Worlds”, Chicago, IL, September 17-20, 2006
- Coordinate reviews and final recommendations for the National Academy report: “Planetary Protection Requirements for Venus Missions” prepared by the NAS Task Group on Planetary Protection Requirements for Venus Missions, 2006
- Invited participant, IDOP workshop “Exploring the Deep Biosphere and the Integrated Ocean Drilling Program”, 3-5 October 2006, Vancouver, BC.

Co-organizer and Co-chair, The American Society for Microbiology symposium “The Rare Microbial Biosphere: Implications and Study”, ASM annual meeting, Toronto, Canada (05/07)

Member of organizing committee and session convener, Bioastronomy-2007 meeting, San Juan, Puerto Rico, July, 2007

Co-organize, AGU Chapman Conference on Planetary Habitability (2009).

Invited participant and speaker, National Academy of Sciences, “Colloquium on Astrobiology and Mars Exploration”, Pasadena, CA, July 2007.

Invited speaker on education in Astrobiology, National Academy of Sciences Committee on The Future of the NASA Astrobiology Program, Orange County, CA, Aug. 2007.

Committee member, American Academy of Microbiology USFCC/J. Roger Porter Award Nominating Committee, 2007-2012.

Invited participant, American Academy of Microbiology colloquium “The Uncharted Microbial World: Microbes and Their Activities in the Environment. (2007).

Session co-organizer and invited plenary speaker, Gordon Conference on the Origin of Life, Session entitled: “Real World Geochemical Complexity: Interfaces, Gradients and Cycles”. Jan. 20-25, 2008, Ventura, CA.

Invited participant and discussion leader, NASA Workshop: “Cyanobacteria on the Moon”, January 28-30, 2008, NASA Ames, CA.

Co-organizer of Plenary Session on “Weird Life”, Astrobiology Science Conference (AbSciCon) , Santa Clara, CA, April 14-18, 2008.

Invited Plenary Speaker at Plenary Session “Life on Exoplanets: What will Space Missions Tell Us?”, Astrobiology Science Conference (AbSciCon), Santa Clara, CA, April 14-18, 2008.

Invited speaker, National Academy of Sciences workshop on the “Origin of Life”, National Academy Building, Washington DC, May 13-14, 2008.

Invited participant and discussion leader, Sloan Foundation Symposium “Deep Carbon Cycle”, Carnegie Geophysical Institute, Washington. DC, May 15-17, 2008.

Invited participant, Netherlands Academy of Science meeting on Diversity of Marine Microorganisms, May 27-30, 2008, Amsterdam, Netherlands

Chair, Steering Committee, International Census of Marine Microbes, met May 25-27, 2008, Amsterdam, Netherlands

Invited Plenary speaker, Santa Fe Institute on Compartmentalization and the Origin of Life, June 15-20, 2008.

Review Panel member, review proposals submitted to NASA Astrobiology Science and Technology for Exploring Planets (ASTEP) program, June 10-12, 2008, Pasadena, CA

Invited speaker, European Science Foundation, “Water World Symposium” workshop, Sicily, November 2008

Invited participant and chaired ICoMM Scientific Advisory Council meeting, International Census of Marine Life International Meeting, Long Beach, CA, February 2009.

Co-organizer and speaker, symposium on “Weird Life”, AAAS meeting, Chicago IL, February 2009

Invited participant (chair of ICoMM Scientific Advisory Council) International Census of Marine Microbes, 454 User Spring Meeting, Marine Biological Laboratory, Woods Hole, MA (April 6-9, 2009)

Invited speaker, “The Search for Life in the Universe”, May Symposium Space Telescope Science Institute, May 4-7, 2009 (Baltimore, MA)

Invited participant and group leader, American Academy of Microbiology colloquium “The Rare Microbial Biosphere”, San Francisco, CA (2009).

Invited Lecturer, 2009 Santander Summer School: Earth’s Extremophiles and Extraterrestrial Habitability, Santander, Spain (June 20-26, 2009)

Invited speaker, Minimal Life meeting, National Science Foundation, August 10-11, 2009

Co-organizer and speaker, symposium on “Weird Life”, AAAS Pacific Division meeting, San Francisco, CA, August, 17-19, 2009

Chair, ICoMM (International Census of Marine Microbes) Scientific Advisory Council meeting, Amsterdam, Netherlands, September 19-21, 2009.

Invited Public Lecture: NASA Lecture Series: Evolution of Biology, Technology, Science and Exploration, November 2, 2009. Mountain View Center for the Performing Arts, Mountain View, CA. Lecture title: “The Limits of Evolution and the Search for Extraterrestrial Life”.

Member, Steering Committee and invited speaker, Pontifical Academy of Sciences Study Week on Astrobiology, Casma Pio IV, Vatican City (November 6-11, 2009)

Organize and Convene, session entitled “The Deep carbon Cycle” Gordon Conference Origin of Life, January 10-15, 2010, Galverston, Texas

Co-organize and Convene, symposium entitled “Implications of Rare Microbes in Natural Populations”, International Society for Microbial Ecology (ISME), international meeting, August 2010, Seattle, Washington.

Member, International Founders Committee, the “Deep Carbon Observatory”, sponsored by the Sloan Foundation (2009-2010)

Member, Executive Committee, the “Deep Carbon Observatory”, sponsored by the Sloan Foundation (2010-2020)

Member, External Advisory Board, Center for Dark Energy Biosphere Investigations (C-DEBI) (2010-2012)

Chair, External Advisory Board, Center for Dark Energy Biosphere Investigations (C-DEBI) (2013-2015)

Member, Executive Council of the Astrobiology Society (2010-2020)

Member, National Academy of Science (NAS) Committee on “Planetary Protection of Icy Bodies in the Outer Solar System” (2010-2012).

Member, European Space Agency (ESA) Planetary Protection Committee – Mars Sample Return (2011-2012)

Member, Selection Committee for the USA Library of Congress Baruch Blumberg Chair in Astrobiology (2012-2016)

Member, Scientific Organizing Committee, International meeting "The Search for Life Beyond the Solar System: Exoplanets, Biomarkers, and Instruments" sponsored by the Vatican Observatory and the Steward Observatory (University of Arizona) to be held at the University of Arizona, March 2014.

Co-Chair, Blumberg Dialogues on astrobiology and the humanities, Library of Congress (2014-2015)

Co-PI and co-organizer, Deep Carbon Observatory (DCO) Summer School – First Summer School, July 2014, Yellowstone National Park (supported by the Sloan Foundation)

Member, USA and Japan, joint Committee organizing a sample return mission from Enceladus (2013-2015)

Member, National Academy of Science National Research Council (NRC) committee Mars Exploration Program Analysis Group (MEPAG) “Special Regions” selection (2014-2015)

Co-organizer and convener, Deep Carbon Observatory (DCO) meeting, Rome, Italy, August 2015.

Member, Deep Carbon Observatory (DCO) committee “Emerging Leader Awards” (2016 to 2020)

Member, SETI Institute Science Advisory Board, 2016-current

Invited participant, National Academy Workshop “Ocean Memory”, September 2017, Friday Harbor

Invited participant, 3D Earth Workshop – Subsurface Science and Exploration, CIFAR sponsored, Toronto, Ontario, Canada December 4-6, 2017.

Invited participant, Deep Carbon Observatory International Meeting in Zurich, Switzerland, October 11-12, 2018 (focus on field studies)

Invited participant, Extreme Biophysics Research Coordinating Network, Troy New York, Dec. 2-3, 2018

Invited participant, Ocean Memory workshop, Santa Catalina Island, California, February 20-27, 2019.

Current and Past Editorial Positions:

Co-Editor (with A. Brack, M. Mayor, and G. Horneck) on Advances in Astrobiology and Biogeophysics Series, Springer-Verlag Press (2001-2006)

Associate Editor, Marine Microbiology and Microbial Ecology Sections, The Encyclopedia of Microbiology, Third Edition, Editors-in Chief, J. Lederberg and M. Schaechter, Elsevier Press, London (published 2009)

Editorial Board and editor in charge of reviews, Astrobiology Journal, Mary Ann Liebert, Inc. Publishers (2003-2013)

Editorial Board, Environmental Microbiology (2006 to 2012)

Editorial Board, Journal Hypothesis in the Biological Sciences (2010 -2014)

Editorial Board, Life Journal (2014-2018)

Co-editor (with R.M. Hazen and A. Jones) Carbon in the Earth, Special issue Reviews in Mineralogy and Geochemistry (2013 publication date)

Co-Editor (with W. Baines) a special issue in the Journal Life on “Limits of Life and Implications”. Published in 2015

Books Published

Co-Editor (with W. Wilcock, D. Kelley, E. DeLong and G. Cary) AGU Monograph: Deep Subsurface Biosphere at Mid-Ocean Ridges, Geophysical Monograph 144, 2004, American Geophysical Union, Washington, DC.

Co-Editor, Series Editor, *Advances in Astrobiology and Biogeophysics*, 2004-2009, Springer-Verlag, Berlin
Co-Editor (with W. Sullivan) *Planets & Life: The Emerging Science of Astrobiology*, 2007. Cambridge University Press
Associate Editor, Marine Microbiology and Microbial Ecology Sections, The *Encyclopedia of Microbiology*, Third Edition, Editors-in Chief, J. Lederberg and M. Schaechter, 2009. Elsevier Press, London
Co-Editor (with R. M. Hazen, & A. P. Jones) *Carbon in the Earth*, Special issue of *Reviews in Mineralogy and Geochemistry* Vol. 75, Mineralogical Society of America – Geochemical Society, 2013

Non-UW Courses (lecturer and/or organizer and lecturer)

Lecturer and co-organizer of Vatican Observatory Summer School (VOSS) on Astrobiology, June 15-July 14, 2005, Vatican City, Italy
Invited lecturer, Winter School in Astrobiology, University of Hawaii, January 2009
Invited Lecturer, 2009 Santander Summer School: Earth's Extremophiles and Extraterrestrial Habitability, Santander, Spain (June 20-26, 2009)
Invited lecturer, Marine Biological Laboratory (MBL) Summer Microbial Diversity course, July 2010
Invited lecturer, Winter School in Astrobiology, University of Hawaii, January 2011
Invited lecturer, 41st SAAS-Fee School, Planets and Life, Switzerland, April 2011 (gave 9 lectures)
Invited lecturer, Astrobiology Summer School, Iceland, July 1-15, 2012
Invited lecturer, Winter School in Astrobiology, University of Hawaii, January 2014
Invited lecturer, Astrobiology graduate course, Biosphere 2, Tucson, AZ, March 2014
Invited lecturer, International Summer School in Astrobiology, Santander, Spain, June 29-July 3, 2015 (The Origin of Life: From Monomers to Cells)
Co-organizer and lecturer, Deep Carbon Observatory (DCO) Summer School, Big Sky Conference Center, Yellowstone, July 13-18, 2014

Examples of Invited Talks (2004 to present)

M. J. Murduck sponsored "Partners in Science" National Conference (Plenary speaker to 200 secondary school science teachers) San Diego, CA (01/04)
The Agouon Institute, Marine Microbial Ecology Meeting, Del Mar, CA (01/04)
The American Association for the Advancement of Science (AAAS), two invited talks, Seattle, WA (02/04)
National Research Council (National Academy of Sciences) Work shop "The Limits of Carbon Life on Earth and Elsewhere" Washington D. C., May 10-11, 2004
The American Society for Microbiology (colloquium speaker), New Orleans, LA (05/04)
Goldschmidt Conference (Plenary speaker), Copenhagen, Denmark (06/04)
Woodfest Conference (conference to celebrate the 60th birthday of Woody Sullivan), University of Washington, Seattle (June 16-18, 2004)
Dark Energy Workshop (Plenary speaker) Wood Hole Oceanographic Institute, Oct. 4-6, 2004
Carnegie Institution of Washington, Washington, D. C. (Oct. 04)
Winter School for Astrobiology (8 lectures) University of Hawaii, Jan. 2005
Gordon Conference on Origin of Life (Plenary speaker), Ventura, CA, Jan. 2005
International Extremophile Meeting (Plenary speaker), Tokyo, Japan, November 2005.
Joint European Space Agency (ESA)/NASA meeting on Europa, UCLA, December, 2005

National Astrobiology Institute, Europa Focus Group meeting, Mountain View, CA (03/06)

The University of Arizona, Templeton public-talk series “Astrobiology and the Sacred” (03/06)

The University of Arizona, Astrobiology students, lecture and discussion on “Evolution and Astrobiology” (03/06)

The National Academy of Sciences, “Weird Life and Astrobiology”, (05/12/06)

The American Society for Microbiology (invited colloquium speaker), Orlando, FL (05/06)

Santa Fe Institute, “Hydrothermal Vents and the Origin of Life, Santa Fe, NM (06/06)

RIDGE Theoretical Institute, Modeling Mid-Ocean Ridge Hydrothermal Processes: magma to Microbe, Invited speaker, Mammoth Lake, Nevada (06/06)

The Forest and the Trees Workshop, Arizona State University (12/06)

American Astronomy Society Annual Meeting, “The Limits of Organic Life in the Universe”, Seattle, WA (01/05-10/07)

American Astronomy Society Annual Meeting, “The Dark, Hot Subsurface Biosphere on Earth and Elsewhere”, Seattle, WA (01/05-10/0)

The American Society for Microbiology annual meeting, introduction to the symposium entitled “The Rare Microbial Biosphere: Implications and Study”, May 2007, Toronto, Canada.

Santa Fe Institute Workshop entitled: “The Origin of Nucleic Acids”, June 2007, Santa Fe, N. M. Gordon Conference, The Origin of Life, January 20-24, 2008. Opening night plenary presentation and convened a session.

NASA Workshop “Cyanobacteria on the Moon”, January 28-30, NASA Ames, Moffitt Field, CA. Invited discussion leader.

NASA Astrobiology Science Conference (AbSciCon), April 14-17, 2008. Invited plenary talk on habitability on extra-solar planets and organized special plenary session on “Weird Life”.

European Science Foundation “Frontiers of Science” event: - Complex Systems and Changes: Water and Life, Presentation title: “Submarine Hydrothermal Vents: Limits of Life, Biofilms and Early Evolution”, 29-31 October 2008, Taormina, Sicily, Italy.

Washington University, St. Louis, Biology Department, “Unexpected Molecular and Physiological Diversity in the Microbial Biofilm at the Lost City Hydrothermal Environment”. March 4, 2009

Washington University, St. Louis, Earth and Space Science Department, “Distant Biosignatures: Life on Exoplanets”, March 5, 2009

Space Telescope Science Institute, May Symposium: The Search for Life in the Universe, Presentation title: “Submarine Hydrothermal Vents: - Limits of Life, Biofilms and Early Evolution”, May 4-7, 2009

Invited Lecturer, 2009 Santander Summer School: Earth’s Extremophiles and Extraterrestrial Habitability, Santander, Spain (June 20-26, 2009)

Santa Fe Institute Origin of Life Meeting: Minimal Life, National Science Foundation, August 10-11, 2009

AAAS Pacific Division meeting, Distant Biosignatures: Life on Exoplanets, Symposium on “Weird Life”, San Francisco, CA, August 17-19, 2009

Public Lecture: NASA Lecture Series: Evolution of Biology, Technology, Science and Exploration, November 2, 2009. Mountain View Center for the Performing Arts, Mountain View, CA. Lecture title: “Searching for life in the universe: A new Darwinian voyage”

Pontifical Academy of Sciences Study Week on Astrobiology, “Limits of life, early evolution, and the search for habitable planets” Casma Pio IV, Vatican City, November 6-11, 2009

Gordon Conference on the Origin of Life, “Microbial ecology of deep ocean environments-Lost City Hydrothermal System”, Galveston, Texas, January 2010.

Cancer Forum Workshop 1, “Biofilms as cancer analogues” Arizona State University, AZ, February 10-12, 2010.

University of Colorado, “Minimal cells, hydrothermal vent biofilms and the origin of multicellular communities” Boulder, CO, May, 2010.

Invited lecturer, Marine Biological Laboratory (MBL) Summer Microbial Diversity course, July 2010

Invited speaker, International Deep-Sea Microbiology Workshop, Brest, France, September 2010, Presentation title: “Minimal cells, hydrothermal vent biofilms, and the origin of multi-cellular communities”.

Invited speaker, The Origins Institute, McMasters University, Canada, October 2010 (two lectures including a public lecture)

Invited speaker, Plenary Session, Geological Society of America, Denver, CO, November 2010, Presentation title: “Limits of life, early evolution, and the search for habitable planets”.

Invited lecturer, Winter School in Astrobiology, University of Hawaii, January 2011 (gave 3 lectures)

Invited lecturer, 41st SAAS-Fee School, Planets and Life, Switzerland, April 2011 (gave 9 lectures)

Invited speaker, International Thermophile meeting, Big Sky, CO, September 2011

Invited plenary speaker, Astrobiology Science Conference, Atlanta GA, April 2012

Invited lecturer, Nordic Summer School in Astrobiology, Iceland, July 2012

Invited speaker, Geological Society of America, Charlotte, North Carolina, November 2012

Invited speaker, Origin of Life Workshop, Princeton University, January 2013.

Invited panel speaker, Deep Carbon Observatory International Meeting, National Academy, Washington, DC, March 2013

Invited speaker, University of Dusseldorf, Germany, June 2013

Invited plenary speaker at the 2013 International Association for the Advancement of High Pressure Science and Technology (AIRAPT), Seattle, WA, July 2013

Invited speaker, University of Toronto, Earth Sciences Seminar Series, September 2013

Invited Panel member (with Stephan Hand and Barbara Sherwood-Loller), A two hour discussion with a public audience on Astrobiology and related topics. Toronto Science Festival, 27-29 September 2013

Invited lecturer, Winter School in Astrobiology, University of Hawaii, January 2014 (gave 3 lectures)

Invited lecturer, Astrobiology, Biosphere 2, Tucson, AZ, March 2014 (3 hours of lectures and led a 2 hour discussion)

Invited plenary speaker (and the opening speaker of the meeting), "The Search for Life Beyond the Solar System: Exoplanets, Biomarkers, and Instruments", Tucson, AZ, March 2014

Co-organizer and speaker (with D. Malone-France, Philosophy Professor at George Washington University) on the topic “Process Philosophy and Astrobiology” at the American Philosophical Society meeting, San Diego, CA, April 2014

Invited speaker with John Delaney, University of Washington Alumni Association and Seattle Arts & Lectures (SAL) “A Dialogue: Life within Planets and Beyond Earth”, May 20, 2014.

Co-organizer and convener, Blumberg Dialogues 1: Astrobiology and Religion, Library of Congress, March 2015.

Co-organizer and convener, Blumberg Dialogues 2: Astrobiology and Philosophy and History, Library of Congress, May 27-28, 2015.

Co-organizer and convener, Blumberg Dialogues 3: Astrobiology and the Arts, Library of Congress, August 5-7, 2015.

Invited lecturer, International Summer School in Astrobiology, Santander, Spain, June 29-July 3, 2015 (The Origin of Life: From Monomers to Cells)

Invited speaker: International meeting “Re-conceptualizing the Origin of Life: Experimental, Interdisciplinary, and Computational Windows on the Core Concepts”, November 9-13, 2015, Carnegie Institution for Science, Washington, DC.

Invited speaker, graduate student biology class, Georgia Tech University, November 2015.

Invited speaker and discussion leader, Public forum on Astrobiology and the Humanities, Georgia Tech University, November 2015.

Invited speaker, public seminar, Port Townsend, WA, April 16, 2016

Invited speaker, seminar on science, philosophy and religion, Department of Philosophy, Claremont College, June 27, 2016

Invited speaker, public seminar on Astrobiology and the Humanities, Claremont College, June 28, 2016

Invited speaker, National Academy of Sciences Workshop: Searching for Life across Space and Time, Presentation title: How Likely is it that Life Exists Beyond Earth. December 5-6, 2016.

Invited speaker, Deep Carbon Observatory, Deep Life talk entitled: The Deep Life Community - Early Expectations and Achievements, Saint Andrews, Scotland March 23-26, 2017.

Invited speaker, Emory University, Atlanta Georgia – “Astrobiology and Religion: The New Darwinian Voyage”, March 2018.

Invited speaker, Astrobiology Science Conference (AbSciCon), Graduate Student Primer, “Hydrothermal vents – Origin of life and astrobiology implications. Seattle, June 23, 2019.

Invited speaker, Ocean Memory Webinar, October 15, 2020, Evolution, Communication and Memory in the Microbes of the Ocean (co-presented with Rika Anderson).

Publications

Fletcher, D. W. and J. A. Baross. 1968. Nutritional factors effecting genetic competence in *Bacillus subtilis*. Mikrobiologija 5:1-19.

Baross, J. A. and J. Liston. 1968. Isolation of *Vibrio parahaemolyticus* from the Northeast Pacific, Nature, London 217:1263-1264.

Baross, J. A. and J. Liston. 1970. Occurrence of *Vibrio parahaemolyticus* and related hemolytic vibrios in marine environments of Washington State. Appl. Microbiol. 20:179- 186.

Barker, W., D. Hooper and J. A. Baross. 1970. Shellfish related gastroenteritis. New Engl. J. Med. 283:319.

Liston, J., J. R. Matches and J. A. Baross. 1970. Survival and growth of pathogenic bacteria in seafoods. In R. Kreuger (ed.) Fish Inspection and Quality control, pp. 246-249. FAO and Fishing News (Books) Ltd., London, England.

Johnson, H. C., J. A. Baross and J. Liston. 1971. *Vibrio parahaemolyticus* and its importance in seafood hygiene. J. Amer. Veterinary Education Assoc. 159:1470-1473. Liston, J. and J. A. Baross. 1973. Distribution of *Vibrio parahaemolyticus* in the natural environment. J. Milk Food Technol. 36:113-117.

Baross, J. 1973. Some influences of temperature, bacteriophage, and other ecological parameters on the distribution and taxonomy of marine vibrios. Ph.D. Dissertation, University of Washington.

Griffiths, R. P., J. A. Baross, F. J. Hanus and R. Y. Morita. 1974. Some physical and chemical parameters affecting the formation and retention of glutamate pools in a marine psychrophilic bacterium. Zeitschrift für Allgemeine Mikrobiologie 14: 359-369.

Baross, J. A., R. Y. Morita and J. Liston. 1974. Some implications of genetic exchange among marine vibrios, including *Vibrio parahaemolyticus*, naturally occurring in the pacific oyster. In T. Funino, G. Sakaguchi, R. Sakazaki and Y. Takeda (eds.) International Symposium on *Vibrio parahaemolyticus*, pp. 129-137, Saikon Publishing Co. Ltd., Tokyo, Japan.

Baross, J. A., F. J. Hanus and R. Y. Morita. 1974. Effects of hydrostatic pressure on uracil uptake, ribonucleic acid synthesis, and growth of three obligately psychrophilic marine vibrios, *Vibrio alginolyticus* and *Escherichia coli*. In R. R. Colwell and R. Y. Morita (eds.) Effect of the Ocean Environment on Microbial Activities, pp. 180-202. University Park Press, Baltimore.

Baross, J. A., F. J. Hanus and R. Y. Morita. 1975. Survival of human enteric and other sewage microorganisms under simulated deep-sea conditions. Appl. Microbiol. 30: 309- 318.

Baross, J. A., F. J. Hanus, R. P. Griffiths and R. Y. Morita. 1975. Nature of incorporated ¹⁴C-labeled material retained by sulfuric acid fixed bacteria in pure cultures and in natural aquatic populations. J. Fish. Res. Board of Canada. 32: 1876-1879.

Baross, J. A. 1976. Halophilic microorganisms. In M. L. Speck (ed.) Compendium of Methods for the Microbiological Examination of Foods, pp. 194-202. American Public Health Association, Inc., Washington, D. C.

Morris, G. K., M. Fishbein, J. A. Baross and W. E. DeWitt. 1976. *Vibrio*. In M. L. Speck(ed.) Compendium of Methods for the Microbiological Examination of Foods, pp. 358-369, American Public Health Association, Inc., Washington, D. C.

Baross, J. A. and R. Y. Morita. 1978. Life at low temperatures: Ecological aspects. In D. Kushner (ed.) *Microbial Life in Extreme Environments*, pp. 9-71. Academic Press, Inc., London.

Baross, J. A., P. A. Tester and R. Y. Morita. 1978. Incidence, microscopy and etiology of exoskeleton lesions in the tanner crab, *Chionoecetes tanneri*. *J. Fish. Res. Bd. Can.* 35: 1141-1149.

Baross, J. A., J. Liston and R. Y. Morita. 1978. Incidence of *Vibrio parahaemolyticus* bacteriophages in marine samples. *Appl. Environ. Microbiol.* 36:492-499.

Baross, J. A., J. Liston and R. Y. Morita. 1978. Ecological relationship between *Vibrio parahaemolyticus* and agar digesting vibrios as evidenced by bacteriophage susceptibility patterns. *Appl. Environ. Microbiol.*, 36:500-505

Baross, J. A., S. E. Hoffman, J. B. Corliss, L. I. Gordon and M. D. Lilley. 1980. Prokaryotic "coelacanths": tube-forming microorganisms from submarine hydrothermal environments. Oregon State University School of Oceanography, Spec. Publ. Ref. 80-8.

Corliss, J. B., J. A. Baross and S. E. Hoffman. 1980. Submarine hydrothermal systems: A probable site for the origin of life. Oregon State University School of Oceanography Spec. Publ. Ref. 80-7.

Corliss, J. B., J. A. Baross and S. E. Hoffman. 1981. An hypothesis concerning the relationship between submarine hot springs and the origin of life on Earth. *Oceanologica Acta* No. SP:59-69.

Lawry, E. V., H. M. Howard, J. A. Baross and R. Y. Morita. 1981. The fine structure of *Cristispira* from the lamellibranch *Cryptoma californica* Conrad. *Curr. Microbiol.* 6: 355-360.

Peters, S., J. A. Baross and R. Y. Morita. 1982. Partial purification and characterization of hemolysin from a psychrotrophic Kanagawa positive marine vibrio. *Appl. Environ. Microbiol.* 43: 39-49.

Baross, J. A., C. N. Dahm, A. K. Ward, M. D. Lilley and J. R. Sedell. 1982. Initial microbiological responses of lakes on Mount Saint Helens following the May 18, 1980 eruption. *Nature* 296: 49-52.

Baross, J. A., M. D. Lilley and L. I. Gordon. 1982. Is the CH₄, H₂ and CO venting from submarine hydrothermal systems produced by thermophilic bacteria? *Nature* 298: 366- 368.

Lilley, M. D., J. A. Baross and L. I. Gordon. 1982. Dissolved hydrogen and methane in Saanich Inlet, British Columbia. *Deep-Sea Res.* 29:1471-1487.

Dahm, C. N., J. A. Baross, M. D. Lilley, A. K. Ward and J. R. Sedell. 1982. Lakes in the blast zone of Mount St. Helens: Chemical and microbial responses following the May 18, 1980 eruption. In W. H. Funk (ed.) Conference on Mount St. Helens: Effects on Water Resources, pp. 98-137, Washington State University Press, Pullman, Washington.

Ward, A. K., J. A. Baross, C. N. Dahm, M. D. Lilley and J. R. Sedell. 1983. Qualitative and quantitative observations on aquatic algal communities and recolonization within the blast zone of Mount St. Helens: 1980 and 1981. *J. Phycology* 19: 232-241.

Dahm, C. N., J. A. Baross, A. K. Ward, M. D. Lilley and J. R. Sedell. 1983. Initial effects of the eruption of Mount St. Helens on nitrogen cycle and related chemical processes in Ryan Lake. *Appl. Environ. Microbiol.* 45: 1633-1645.

Tison, D. L., J. A. Baross and R. J. Seidler. 1983. Legionella in aquatic habitats in the Mount St. Helens blast zone. *Current Microbiol.* 9: 345-348.

Baross, J. A. and J. W. Deming. 1983. Growth of "black smoker" bacteria at temperatures of at least 250°C. *Nature* 303: 423-426.

Lilley, M. D., J. A. Baross and L. I. Gordon. 1983. Reduced gases and bacteria in hydrothermal fluids: The Galapagos spreading center and 21°N East Pacific Rise. In P. Rona, K. Bostrom, L. Laubier and K. Smith (eds.) *Hydrothermal Processes at Seafloor Spreading Centers*, pp. 441-449. Plenum Press, New York.

Baross, J. A. and J. Matches. 1984. Halophilic microorganisms In M. L. Speck (ed.) *compendium of Methods for the Microbiological Examination of Foods*, 2nd Edition, pp. 160-169. American Public Health Association, Inc., Washington, D. C.

Baross, J., M. D. Lilley and M. deAngelis. 1984. Chemistry and microbiology of dissolved gases in Saanich Inlet. In S. K. Juniper and R. O. Brinkhurst (eds.) *Proceedings of a Multidisciplinary Symposium on Saanich Inlet:25-26*. Canadian Technical Report Hydrography and Ocean Science 38. 104 p.

Baross, J. A. and J. W. Deming. 1984. Reply to Trent, J. D., R. A. Chastain and A. A. Yayanos. *Nature* 307: 740.

Baross, J. A., J. W. Deming and R. R. Becker. 1984. Evidence for microbial growth in high pressure, high temperature environments. In M. J. Klug and C. A. Reddy (eds.) *Current Perspectives in Microbial Ecology*, pp. 186-195. Third International Symposium on Microbial Ecology, American Society for Microbiology, Washington, D. C.

Hoffman, S. E. and J. A. Baross. 1985. Submarine hydrothermal environments as sites for the origin and evolution of life. In K. Burke and L. D. Ashwal (eds.) pp. 34-36. *Workshop on Early Earth: The Interval from Accretion to the Older Archean*. Lunar and Planetary Institute (LPI) Technical Report 85-01, Houston, Texas.

- Baross, J. A. and J. W. Deming. 1985. The role of bacteria in the ecology of black smoker environments. In M. Jones (ed.) *The Hydrothermal Vents of the Eastern Pacific: An Overview*. Biol. Soc. of Washington Bull. 6: 355-371.
- Baross, J. A. and S. E. Hoffman. 1985. Submarine hydrothermal vents and associated gradient environments as sites for the origin and evolution of life. *Origins of Life* 15: 327-345.
- Deming, J. W. and J. A. Baross. 1986. A solid medium for culturing extremely thermophilic bacteria at temperatures to 120°C. *Appl. Environ. Microbiol.* 51: 238-243.
- Baross, J. A. and S. E. Hoffman. 1986. Submarine hydrothermal vents and associated gradient environments as sites for the origin and evolution of life. *Naval Res. Rev.* 38: 2-12.
- Delaney, J. R., F. N. Spiess, S. C. Solomon, R. Hessler, J. L. Karsten, J. A. Baross, R. T. Holcomb, D. Norton, R. E. McDuff, F. Sayles, J. Whitehead, D. Abbot and L. Olson. 1987. Scientific rationale for establishing long-term ocean bottom observatory/laboratory systems. In P. G. Teleki, M. R. Dobson, J. R. Moore and U. von Stackelberg (eds.) *Marine Minerals: Resource Assessment strategies*, pp. 389-411, D. Reidel Publishing Co.
- Wissmar, R. C., J. A. Baross, M. D. Lilley and C. N. Dahm. 1988. Nitrogen cycling in altered and newly created lakes near the Mount St. Helens volcano. *J. Freshwater Ecol.* 4: 551-568.
- Lilley, M. D., J. A. Baross and C. N. Dahm. 1988. Methane production and oxidation in lakes impacted by the May 18, 1980 eruption of Mount St. Helens. *Global Biogeochemical Cycles* 2: 357-370.
- Jumars, P. A., D. L. Penry, J. A. Baross, M. J. Perry and B. W. Frost. 1989. Closing the microbial loop: Dissolved carbon pathway to heterotrophic bacteria from incomplete ingestion, digestion and absorption in animals. *Deep-Sea Research* 36: 483-495.
- Plante, C. J., P. A. Jumars and J. A. Baross. 1989. Rapid bacterial growth in the hindgut of a marine deposit feeder. *Microbial Ecology* 18: 29-44.
- Pledger, R. J. and J. A. Baross. 1989. Characterization of an extremely thermophilic archaebacterium isolated from a black smoker polychaete (*Paralvinella* sp.) at the Juan de Fuca Ridge. *System. Appl. Microbiol.* 123: 249-256.
- Jumars, P. A., L. M. Mayer, J. W. Deming, J. A. Baross and R. A. Wheatcroft. 1990. Deep-sea deposit-feeding strategies suggested by environmental and feeding constraints. *Phil. Trans. Royal Soc., London, A* 331: 85-101.
- Straube, W. L., J. W. Deming, C. C. Somerville, R. R. Colwell and J. A. Baross. 1990. Particulate DNA in smoker fluids: Evidence for existence of microbial populations in hot hydrothermal systems. *Appl. Environ. Microbiol.* 56: 1440-1447.

Plante, C. J., P. A. Jumars and J. A. Baross. 1990. Digestive associations between detritivores and bacteria. *Annu. Rev. Ecol. Syst.* 21: 93-127.

Pledger, R. J. and J. A. Baross. 1991. Preliminary description and nutritional characterization of a chemoorganotrophic archaeobacterium growing at temperatures of up to 110°C isolated from a submarine hydrothermal vent environment. *J. Gen. Microbiol.* 137: 203-211.

deAngelis, M. A., J. A. Baross and M. D. Lilley. 1991. Enhanced microbial methane oxidation in deep-sea hydrothermal vent field water at simulated in situ hydrostatic pressures. *Limnol. Oceanogr.* 36: 565-570.

deAngelis, M. A., A.-L. Reysenbach and J. A. Baross. 1991. Surfaces of hydrothermal vent invertebrates: sites of elevated microbial methane oxidation activity. *Limnol. Oceanogr.* 36: 570-577.

Baross, J. A. 1991. Source and characteristics of hyperthermophilic heterotrophs from submarine hydrothermal vent environments; Source and characteristics of thermophilic methanogens from submarine hydrothermal vent environments; Methods used for the detection and isolation of extremely thermophilic bacteria from submarine hydrothermal vent communities. In E. M. Fleischmann, A. R. Place, R. T. Robb and H. J. Schreier (eds.) *Protocols for Archaeobacterial research*, pp. A.1-A.3; B.1-B.2; C.1-C.2. The Center of Marine Biotechnology, Baltimore, MD.

Baross, J. A. and L. M. Lenovich. 1992. Halophilic and osmophilic microorganisms. In: Vanderzant and D. F. Splittstoesser (eds.) *Compendium of Methods for the Microbiological Examination of Foods*, Third Edition, pp. 199-212. American Public Health Association, Washington, D. C.

Hedrick, D. B., R. D. Pledger, D. C. White and J. A. Baross. 1992. In situ microbial ecology of hydrothermal vent sediments. *FEMS Microbial Ecology* 101: 1-10.

Nealson, F. H. (Chairman), J. Baross, M. Carr, R. Pepin, T. Schmidt, J. Shann, J. Vestal, White and R. Young (Task Group on Planetary Protection). 1992. *Biological Contamination of Mars: Issues and Recommendations*. Space Studies Board, Commission on Physical Sciences, mathematics, and Applications, national Research Council, National Academy Press, Washington, D. C., 115 pages.

Prieur, D., G. Erauso, J. Llanos, J. W. Deming and J. A. Baross. 1992. Effect of hydrostatic pressure on mesophilic and ultrathermophilic archaeobacteria from deep sea hydrothermal vents. In C. Balny, R. Hayashi, K. Heremans and P. Masson (eds.) *High Pressure and Biotechnology, Colloque Inserm Vol. 224*: 19-25.

Deming, J. W. and J. A. Baross. 1993. The early diagenesis of organic matter: Microbial activity. In M. Engel and S. A. Macko (eds.) *Organic Geochemistry*, pp. 119-144, Plenum Publishing Corp., New York.

- Baross, J. A. 1993. Isolation and cultivation of hyperthermophilic bacteria from marine and freshwater habitats. In P. F. Kemp, B. F. Sherr, E. B. Sherr and J. J. Cole (eds.), pp. 21-30, Handbook of Methods in Aquatic Microbial Ecology, Lewis Publishers, Boca Raton, Florida.
- Erauso, G., A.-L. Reysenbach, A. Godfroy, J.-R. Meunier, B. Crump, F. Partensky, J. A. Baross, V. Marteinsson, G. Barbier, N. R. Pace and D. Prieur. 1993. *Pyrococcus abyssi* sp. Nov., a new hyperthermoiphilic archaeon isolated from a deep-sea hydrothermal vent. Arch. Microbiol. 160:3348-349.
- Schuliger, J. W., S. H. Brown, J. A. Baross and R. M. Kelly. 1993. Purification and characterization of a novel amylolytic enzyme from ES4, a marine hyperthermophilic archaeum. Mol. Mar. Biol. Biotech. 2:76-87.
- DeAngelis, M. A., M. D. Lilley, E. J. Olson and J. A. Baross. 1993. Microbial methane oxidation in deep-sea hydrothermal plumes of the Endeavour segment of the Juan de Fuca Ridge. Deep-Sea Res. 40: 1169-1186.
- Deming, J. W. and J. A. Baross. 1993. Deep-sea smokers: Windows to a subsurface biosphere. Geochim. Cosmochim. Acta 57: 3219-3230.
- Holden, J. F. and J. A. Baross. 1993. Enhanced thermotolerance and temperature induced changes in protein composition in the hyperthermophilic archaeon ES4. J. Bacteriol. 175: 2839-2843.
- Pledger, R. J., B. Crump and J. A. Baross. 1994. A barophilic response by two hyperthermophilic hydrothermal vent Archaea: Acceleration of growth rate by supra-optimal temperature by elevated pressure. FEMS Microbial Ecology 14:233-242.
- Kelly, R. M., J. A. Baross and M. W. W. Adams. 1994. Biotechnology and life in boiling water. Chemistry in Britain 30:555-558.
- Kadko, D., E. Baker, J. Alt and J. A. Baross. 1994. Global impact of submarine hydrothermal processes: Ridge/Vents Workshop, NSF RIDGE Initiative and NOAA Vents Program.
- Baross, J. A., B. Crump and C. A. Simenstad. 1994. Elevated microbial loop activities in the Columbia River estuarine turbidity maxima. pp. 459-464. in K. Dyer and R. Orth (eds.), Changing Particle Fluxes in Estuaries: Implications from Science to Management, ECSAERF92 Symposium, Olsen & Olsen Press, London.
- Simenstad, C. A., C. A. Morgan, J. R. Cordell and J. A. Baross. 1994. Flux, passive retention, and active residence of zooplankton in Columbia River estuarine turbidity maxima. pp. 473-482, in K. Dyer and R. Orth (eds.) Changing Particle Fluxes in Estuaries: Implications from Science to Management, ECSAERF92 Symposium. Olsen & Olsen Press, London.

Simenstad, C. A., D. J. Reed, D. A. Jay, J. A. Baross, F. G. Prahl and L. F. Small. 1994. Land-margin ecosystem research in the Columbia River estuary: Investigations of the couplings between physical and ecological processes within estuarine turbidity maxima. pp. 437-444. in K. Dyer and R. Orth (eds.) *Changing Particle Fluxes in Estuaries: Implications from Science to Management*, ECSAERF92 Symposium. Olsen & Olsen Press, London.

Baross, J.A. and J.W. Deming. 1995. Growth at high temperatures: Isolation and taxonomy, physiology, Ecology. In D.M. Karl (ed.) *Microbiology of Deep Sea Hydrothermal Vent Habitats*, pp. 169-217. CRC Press, Boca Raton, FL.

Holden, J.F. and J.A. Baross. 1995. Enhanced thermotolerance by hydrostatic pressure in the deep-sea hyperthermophile *Pyrococcus* strain ES4. *FEMS Microbiol.Ecol.* 18: 27- 34.

Baross, J.A. 1995. Isolation, growth, and maintenance of hyperthermophiles, Protocol 2, In F.T. Robb, A.R. Place, K.R. Sowers, H.J. Schreier, D. DasSarma and E.M. Fleischmann (eds.) *Archaea, A Laboratory Manual*, pp 15-24, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY.

Kadko, D., J. Baross and J. Alt. 1995. The magnitude and global implication of hydrothermal flux. In S. Humphris, R. Zierenberg, L. Mullineaux and R. Thomson (eds.), *Seafloor Hydrothermal Systems: Physical, Chemical, Biological and Geological Interactions*, Geophysical Monograph 91, pp. 446-466. American Geophysical Union, Washington, D. C.

Baross, J. A., J. F. Holden, R. J. Pledger, B. C. Crump and M. Summit. 1995. Submarine vent archaea: Ecology and strategies for growth above 90°C. In *Proceed. International Summer Seminar on Deep-sea Microorganisms in JAMSTEC*, pp. 69-73. JAMSTEC Pub. Kanagawa, Japan.

Baross, J. A. and J. F. Holden. 1996. Overview of hyperthermophiles and their heat-shock proteins. In M. W. W. Adams (ed.) *Advances in Protein Chemistry*, Vol. 48, pp 1-35. Academic Press, New York.

Crump, B. and J. A. Baross. 1996. Particle-attached bacteria and heterotrophic plankton associated with the Columbia River estuarine turbidity maxima. *Mar. Ecol. Prog. Ser.* 138:265-273.

Baross, J. A., M. Summit and J. F. Holden. 1997. Is there a microbial biosphere in the subsurface? *JOI/USSAC Newsletter* 10:8-11.

Delaney, J. R., D. S. Kelly, M. D. Lilley, D. A. Butterfield, R. E. McDuff, J. A. Baross, J. W. Deming, H. P. Johnson and V. Robigou. 1997. The Endeavour hydrothermal system 1: cellular circulation above an active cracking front yields large sulfide structures, "fresh" vent water, and hyperthermophilic Archaea. *RIDGE Events*, July 1997, p. 11-19.

Wang, C. L., P. C. Michels, S. C. Dawson, S. Kitisakkul, J. A. Baross, J. D. Keasling and D. S. Clark. 1997. Cadmium removal by a new strain of *Pseudomonas aeruginosa* in aerobic culture. *Appl. Environ. Microbiol.* 63:4075-4078.

Crump, B. C., C. A. Simenstad and J. A. Baross. 1998. Particle-attached bacteria dominate the Columbia River estuary. *Aquatic Microbial Ecology* 14:7-18.

Holden, J. F., M. Summit and J. A. Baross. 1998. Thermophilic and hyperthermophilic microorganisms in 3-30°C hydrothermal fluids following a deep-sea volcanic eruption. *FEMS Microbiol. Ecol.* 25:33-41.

Baross, J. A. 1998. Do the geological and geochemical records of the early earth support the prediction from global phylogenetic models of a thermophilic ancestor? In J. Wiegel and M. Adams (eds.), Chapter 1, pp. 3-18. *Thermophiles: The Keys to Molecular Evolution and the Origin of Life.* Taylor and Francis, London.

Delaney, J. R., D. S. Kelley, M. D. Lilley, D. A. Butterfield, J. A. Baross, W. S. D. Wilcock, R. W. Embley and M. Summit. 1998. The quantum event of oceanic crustal accretion: Impacts of diking at mid-ocean ridges. *Science* 281:222-230.

Baross, J. A. 1998. Hydrothermal vents - Thermophiles and Hyperthermophiles. *McGraw-Hill Yearbook of Science and Technology*, pp. 180-183, McGraw-Hill, New York.

Task Group on Sample Return from Small Solar System Bodies (L. Orgel, Chair, M. A'Hearn, J. Bada, J. Baross, C. Chapman, M. Drake, J. Kerridge, M. S. Race, M. Sogin and S. Squyres). 1998. *Evaluating the Biological Potential in Samples Returned from Planetary Satellites and Small Solar System Bodies*, 100 pages, National Academy Press, Washington, D. C.

Prahl, F. G., L. F. Small, B. A. Sullivan, J. Cordell, C. A. Simenstad, B. C. Crump and J.A. Baross. 1998. Biogeochemical gradients in the lower Columbia River. *Hydrobiologia* 361:37-52.

Crump, B. C., J. A. Baross and C. A. Simenstad. 1998. Dominance of particle-attached bacteria in the Columbia River estuary, USA. *LMER News - Newsletter for the Land Margin Ecosystems Research Program.* Fall issue, p 2-5.

Baross, J. A. 1998. Living on the edge, a review of the journal *Extremophiles*. *Nature* 395:136.

Summit, M., B. Scott, K. Nielson, E. Mathur and J. Baross. 1998. Pressure enhances thermal stability of DNA polymerase from three thermophilic organisms. *Extremophiles* 2:339-345.

Hopkinson, C., I. Buffman, J. Hobbie, J. Vallino, M. Perdue, B. Eversmeyer, F. Prahl, J. Covert, R. Hodson, M. A. Moran, E. Smith, J. Baross, B. Crump, S. Findlay and K. Forman. 1998. Terrestrial inputs of organic matter to coastal ecosystems: An intercomparison of chemical characteristics and bioavailability. *Biogeochemistry* 43: 211-234.

Summit, M. and J. A. Baross. 1999. Thermophilic subseafloor microorganisms from the 1996 North Gorda Ridge eruption. *Deep-Sea Research II* 45: 2751-2766.

Knoll A, Osborn MJ, Baross J, Berg HC, Pace NR, et al. 1999. Size limits of very small microorganisms: Proceedings of a Workshop. Washington, D.C.: National Academy Press, Washington, D.C.

Crump, B. C., E. V. Armbrust and J. A. Baross. 1999. Phylogenetic analysis of particle- attached and free-living bacterial communities in the Columbia River, estuary and adjacent coastal ocean. *Appl. Environ. Microbiol.* 65: 3192-3204.

Orgel, L., M. A'Hearn, J. Bada, J. Baross, C. Chapman, M. Drake, J. Kerridge, M. Race, M. Sogin and S. Squyres. 2000. Sample return from small solar bodies. *Adv. Space Res.* 25: 239-248.

Holden, J. F., M. W. W. Adams and J. A. Baross. 2000. Heat-shock response in hyperthermophilic microorganisms. In *Stress Genes: Role in Physiological Ecology, Progress in Microbial Ecology, Proceed. of the 8th International Symposium on Microbial Ecology*, Halifax, Canada.

Crump, B. C. and J. A. Baross. 2000. Archaeoplankton in the Columbia River, estuary and adjacent coastal ocean. *FEMS Microbial Ecology* 31(3): 231-139.

Summit, M., A. Peacock, D. Ringelberg, D. C. White and J. A. Baross. 2000. Estimation of microbial biomass and community composition in hot, hydrothermally influenced sediments from Middle Valley, Juan de Fuca Ridge. *Proceed. ODP Sci. Res. Leg 169*.

Deming, J. W. and J. A. Baross. 2000. Survival, dormancy and non-culturable cells in extreme deep-sea environments. In R. R. Colwell and D. J. Grimes (eds.) *Non-culturable Microorganisms in the Environment*, Chapter 10, pp147-197. American Society for Microbiology Press, Washington, D. C.

Delaney, J. R., D. S. Kelley, E. Mathez, D. Yoerger, J. Baross, M. Schrenk and J. Kaye. 2001. Edifice Rex sulfide recovery project: Interdisciplinary analysis of a sulfide microbial habitat from a submarine hydrothermal system. *EOS* 82:67-71.

Summit, M. and J. A. Baross. 2001. A novel microbial habitat in the mid-ocean ridge subseafloor. *Proceed. Natl. Acad. Sci., USA* 98:2158-2163.

Holden, J. F., K. Takai, M. Summit, J. A. Zyskowski and J. A. Baross. 2001. Diversity among deep-sea hyperthermophilic sulfur-reducing *Thermococcus* and *Pyrococcus* species. *FEMS Microbial Ecology* 36:51-60.

Huber, J., D. Butterfield and J. Baross. 2002. Temporal changes in archaeal diversity and chemistry in a mid-ocean ridge seafloor habitat. *Appl. Environ. Microbiol.* 68:1585- 1594.

Deming, J. W. and J. A. Baross. 2002. Search and discovery of microbial enzymes from thermally extreme environments in the ocean, In R. G. Burns and R. P. Dick (eds.) *Enzymes in the Environments*. Chapter 13, pp. 327-362. Marcel Dekker Publ., New York.

Kelley, D. S., J. A. Baross and J. R. Delaney. 2002. Volcanoes, fluids, and life at mid-ocean ridge spreading centers. *Annual Reviews Earth and Planetary Sciences* 30:385-491.

Baross, J. A., J. Lunine (Co-chairs, NAI Committee on the Origins and Evolution of Life (COEL) and COEL committee members. 2002, *Signs of Life, A Report Based on the April 2000 Workshop on Life Detection Techniques*. National Academy Press, Washington, D. C.

Delaney, J. R., D. S. Kelley, E. Mathez, D. Yoerger, J. Baross, M. Schrenk and J. Kaye. 2001. Edifice Rex sulfide recovery project: Interdisciplinary analysis of a sulfide microbial habitat from a submarine hydrothermal system. *EOS* 82:67-71.

Summit, M. and J. A. Baross. 2001. A novel microbial habitat in the mid-ocean ridge seafloor. *Proceed. Natl. Acad. Sci., USA* 98:2158-2163

Holden, J. F., K. Takai, M. Summit, J. A. Zyskowski and J. A. Baross. 2001. Diversity among deep-sea hyperthermophilic sulfur-reducing *Thermococcus* and *Pyrococcus* species. *FEMS Microbial Ecology* 36:51-60.

Huber, J., D. Butterfield and J. Baross. 2002. Temporal changes in archaeal diversity and chemistry in a mid-ocean ridge seafloor habitat. *Appl. Environ. Microbiol.* 68:1585- 1594.

Deming, J. W. and J. A. Baross. 2002. Search and discovery of microbial enzymes from thermally extreme environments in the ocean, In R. G. Burns and R. P. Dick (eds.) *Enzymes in the Environments*. Chapter 13, pp. 327-362. Marcel Dekker Publ., New York.

Kelley, D. S., J. A. Baross and J. R. Delaney. 2002. Volcanoes, fluids, and life at mid-ocean ridge spreading centers. *Annual Reviews Earth and Planetary Sciences* 30:385-491.

Baross, J. A., J. Lunine (Co-chairs, NAI Committee on the Origins and Evolution of Life (COEL) and COEL committee members. 2002, *Signs of Life, A Report Based on the April 2000 Workshop on Life Detection Techniques*. National Academy Press, Washington, D. C.

Kerridge, J., M. Moldowan, R. Summons, J. W. Schopf, J. Farmer, P. Albrecht, D. S. McKay, G. D. McDonald, B. Beard, D. DesMarais, S. Cady, A. Steele, J. Grotzinger, J. Banfield, D. Canfield, B. Little, J. Baross, J. Rummel and S. Chang. 2002. Biosignatures for Mars Exploration. NASA publication SP-XXX, Washington, DC

Steele, A., Baross, J., Rummel, J. and W. Schopf, 2002. The biological considerations of Mars sample return. *NASA Special Publication*.

Huber, J., D. Butterfield and J. Baross. 2003. Temporal increases in bacterial diversity at a mid-ocean ridge seafloor environment following a volcanic eruption event. *FEMS Microbial Ecology* 43:393-409.

Mehta, M. P., D. Butterfield and J. A. Baross. 2003. Phylogenetic diversity of nitrogenase (*nifH*) genes in deep sea and hydrothermal vent environments of the Juan de Fuca Ridge. *Appl. Environ. Microbiol.* 69:960-970.

Johnson, H. P., J. A. Baross, T. Bjorklund, W. Brazelton, J. Huber, M. Johnson, M. Pruis, S. Lang, F. McCroskey, M. Mehta, D. Butterfield, W. Martin, K. Roe, C. Channing, P. Kalk, C. Kammerer, R. Light, V. Miller, M. McCarthy, W. Moore and M. Sharma. 2003. Probing for life in the ocean crust with the LEXEN Program. *EOS, Transactions AGU* 84 (12):109, 112.

Kashefi, K., D. E. Holms, J. A. Baross and D. R. Lovley. 2003. Thermophily in the Geobacteraceae: *Geothermobacter ehrlichii* gen. nov., sp. nov., a novel thermophilic member of the Geobacteraceae from the "Bag City" hydrothermal vent. *Appl. Environ. Microbiol.* 69:2985-2993.

NAI Committee on the Origins and Evolution of Life (COEL) J. Lunine and J. Baross, co-chairs and COEL committee members. 2003. *Life in the Universe: An Examination of United States and International Programs in Astrobiology*. National Academy Press, Washington, D. C.

Holland, M. and J. A. Baross. 2003. Limits of life in hydrothermal systems. In *Energy and Mass Transfer in Marine Hydrothermal Systems*, P. E. Halbach, V. Tunnicliffe and J. Hein (eds.), pp. 235-250. Proceed. 89th Dahlem Conference, Springer-Verlag

Tunnicliffe, V., J. Baross, A. V. Gebruk, O. Giere, A. Koschinsky, A. L. Reysenbach, T. M. Shank and M. Holland. 2003. What are the interactions between biotic processes at vents and physical, chemical and geological conditions? In *Energy and Mass Transfer in Marine Hydrothermal Systems*, P. E. Halbach, V. Tunnicliffe and J. Hein (eds.) pp. 251-270. Proceed. 89th Dahlem Conference, Springer-Verlag.

Schrenk, M. O., D. S. Kelley, J. R. Delaney and J. A. Baross. 2003. Incidence and diversity of microorganisms within the walls of an active deep-sea sulfide chimney. *Appl. Environ. Microbiol.* 69: 3580-3592..

- Baross, J. A., W. S. D. Wilcock, D. S. Kelley, E. F. DeLong and S. C. Cary. 2004. The subsurface biosphere at mid-ocean ridges: Issues and challenges. In: W. D. Wilcock, E. DeLong, D. S. Kelley, J. A. Baross, and C. Cary (eds.), *The Subseafloor Biosphere at Mid-Ocean Ridges Geophysical Monograph 144*. American Geophysical Union, pp. 1-11.
- Holland, M., J. A. Baross and J. F. Holden. 2004. Illuminating subseafloor ecosystems using microbial tracers. In: W. D. Wilcock, E. DeLong, D. S. Kelley, J. A. Baross, and C. Cary (eds.), *The Subseafloor Biosphere at Mid-Ocean Ridges Geophysical Monograph 144*, American Geophysical Union, pp. 291-303.
- Butterfield, D. A., M. D. Lilley, J. A. Huber, J. A. Baross, K. K. Roe, R. W. Embley and G. L. Massoth. 2004. Mixing reaction and microbial activity in sub-seafloor hydrothermal upflow zones: Evidence from diffuse flow outcrops across the 1998 Axial Volcano sea-floor eruption area through time. In: W. D. Wilcock, E. DeLong, D. S. Kelley, J. A. Baross and C. Cary (eds.), *The Subseafloor Biosphere at Mid-Ocean Ridges Geophysical Monograph*, American Geophysical Union. Pp. 269-289.
- Kaye, J. Z., M. C. Márquez, A. Ventosa and J. A. Baross. 2004. *Halomonas neptunia* sp. nov., *Halomonas sulfidaeris* sp. nov., *Halomonas axialensis* sp. nov., and *Halomonas hydrothermalis* sp. nov.: halophilic bacteria isolated from widely distributed deep-sea hydrothermal-vent environments. *International J. Syst. Evol. Microbiol.* 54:499-511.
- Schrenk, M. O., D. S. Kelley, S. Bolton and J. A. Baross. 2004. Low archaeal diversity linked to sub-seafloor geochemical processes at the Lost City Hydrothermal Field, Mid- Atlantic Ridge, *Environmental Microbiology* 6:1096-1095.
- Kaye, J. Z. and J. A. Baross. 2004. Synchronous Effects of temperature, pressure and salinity on growth, phospholipid profiles, and protein patterns of four *Halomonas* species isolated from deep-sea hydrothermal-vent and sea surface environments. *Appl. Environ. Microbiol.* 70:6220-6229.
- Kelley, D. S., J. A. Karson, G. L. Früh-Green, D. R. Yoerger, T. M. Shank, D. A. Butterfield, J. M. Hayes, M. O. Schrenk, E. J. Olson, G. Proskurowski, M. Jakuba, A. Bradley, B. Larson, K. Ludwig, D. Glickson, K. Buckman, A. S. Bradley, W. J. Brazelton, K. Roe, M. J. Elend, A. Delacour, S. M. Bernasconi, M. D. Lilley, J. A. Baross, R. E. Summons and S. P. Silva. 2005. A serpentinite-hosted ecosystem: the lost city hydrothermal field. *Science* 307:1428-1434.
- Mehta, M. P., J. A. Huber and J. A. Baross. 2005. Incidence of novel and potentially archaeal nitrogenase genes in the deep Northeast Pacific Ocean. *Environ. Microbiol.* 7:1525-1534.
- Huber, J. A., H. P. Johnson, D. A. Butterfield and J. A. Baross. 2006. Microbial life in ridge crest crustal fluids. *Environ. Microbiol.* 8:88-99.

- Baross, J. A. 2006. The limits of organic life in planetary systems. *Bulletin American Astronomical Society* 38:1070
- Johnson, H. P., J. A. Baross and T. Bjorklund. 2006. On sampling the oceanic upper crustal reservoir. *Geofluids* 6:251-271.
- Brazelton, W. J., M. O. Schrenk, D. S. Kelley and J. A. Baross. 2006. Methane and sulfur metabolizing microbial communities dominate in the Lost City hydrothermal vent ecosystem. *Appl. Environ. Microbiol.* 72:6257-6270.
- Huber, J. A., D. A. Butterfield and J. A. Baross. 2006. Diversity and distribution of subseafloor Thermococcales populations at an active deep-sea volcano in the Northeast Pacific Ocean. *J. Geophysical Res., Bioscience* 111, No. G4, GO4016
- Metha, M. P. and J. A. Baross. 2006. Nitrogen fixation at 92°C by a hydrothermal vent archaeon. *Science* 314:1783-1786.
- Baross, J. A., M. O. Schrenk and J. A. Huber. 2007. Habitable Zones and the Limits of Life. In W. Sullivan and J. Baross (eds.), *Planets and Life: The Emerging Science of Astrobiology*, Cambridge University Press.
- Baross, J. A. 2007. Evolution: An essential feature of life, In W. Sullivan and J. Baross (eds.) *Planets and Life: The Emerging Science of Astrobiology*, Cambridge University Press.
- Sullivan, W. and J. Baross (eds.) 2007. Prologue, *Planets and Life: The Emerging Science of Astrobiology*, Cambridge University Press.
- Sullivan, W. and J. Baross (eds.) 2007, *Planets and Life: The Emerging Science of Astrobiology*, Cambridge University Press.
- Baross, J. A. (Chair) et al., 2007. Report of the National Academy of Sciences Task Group "The Limits of Organic Life in Planetary Systems". National Academy Press, Washington, DC.
- Martin, W., J. Baross, D. Kelley and M. J. Russell. 2008. Hydrothermal vents and the origin of life. *Nature Reviews Microbiology* 6:805-814.
- Schrenk, M. O., J. F. Holden and J. A. Baross. 2008. Magma-to-microbe networks in the context of sulfide hosted microbial ecosystems. In R. P. Lowell, J. S. Seewald, A. Metaxas and M. R. Perfit (eds.), *Magma to Microbe, Modeling Hydrothermal Processes at Oceanic Spreading Centers*, pages 233-258, Geophysical Monograph 178. American Geophysical Union, Washington, DC
- Brazelton, W. J. and J. A. Baross. 2009. Abundant transposases encoded by a metagenome of a hydrothermal chimney biofilm. *The ISME Journal* 3:1420-1424.

- Opatkiewicz, A. D., D. A. Butterfield and J. A. Baross. 2009. Individual hydrothermal vents at Axial Seamount harbor distinct subsurface microbial communities. *FEMS Microbiology Ecology* 70:413-424.
- Brazelton, W. J. , K. Ludwig, M. Sogin, E. Andreishcheva, D. Kelley, C.-C. Shen, R. L. Edwards and J. A. Baross. 2010. Archaeal and bacterial communities with surprising microdiversity show shifts in dominance over 1000-year time scales at the Lost City Hydrothermal Field. *Proceed. Natl. Acad. Sci., USA* 107:1612-1617
- Amaral-Zettler, L., F. Artigas, J. Baross, L. Bharathi, A. Boetius, D. Chandramohan, G. Herndl, K. Kogure, S. Schouten, L. Stal, P. Neal, D. Patterson, C. Pedrol-Alió, A. Thessen, J. de Leeuw and M. Sogin. 2010. A global census of marine microbes. In A. McIntyre (Ed.) *Life in the World's Ocean: Diversity, Distribution, and Abundance* (pp. 223-246). Wiley-Blackwell, London.
- Brazelton, W. J. and J. A. Baross. 2010. Metagenomic comparison of two *Thiomicrospira* lineages inhabiting contrasting deep-sea hydrothermal environments. *PLoS One* 5(10):1-8.
- Brazelton, W. J., M. L. Sogin, and J. A. Baross. 2010. Multiple scales of diversification within natural populations of archaea in hydrothermal chimney biofilms. *Environmental Microbiology Reports*. 2:236-242.
- Goldman, A. D., R. Samudraia and J. A. Baross. 2010. The evolution and functional repertoire of translation proteins during the origin of life. *Biology Direct* 5:15
- Kaye, J. Z., B. Sylvan, K.J. Edwards and J. A. Baross. 2011. *Halomonas* and *Marinobacter* are widespread euryhaline bacterial ecotypes from hydrothermal vent, subsurface and deep-sea environments. *FEMS Microbial Ecology* 75:123-133.
- Anderson, R. E., W. J. Brazelton and J. A. Baross. 2011. Using CRISPRs as a metagenomic tool to identify microbial hosts of a diffuse flow hydrothermal vent viral assemblage. *FEMS Microbiology Ecology* 77:120-133.
- Brazelton, W. J., M. P. Mehta, D. S. Kelley and J. A. Baross. 2011. Multicellular characteristics of a single-species biofilm fueled by serpentinization. *MBio* 2 (4) e00127- 11, pg 1-9.
- Walter, M., J. Baross., A. Coustenis, J. Horner, M.Kress, K. Meech, J. Perez-Mercader and N. Woolf. 2011. Message from the Executive Council of the Astrobiology Society: The First Year. *Astrobiology* 11:75.
- Anderson, R. E., W. J. Brazelton and J. A. Baross. 2011. Is the genetic landscape of the deep subsurface biosphere affected by viruses? *Frontiers in Microbiology: Extreme Environment*. Vol. 2, article 219, pages 1-16.

Goldman, A. D., J. A. Baross and R. Samudrala. 2012. The enzymatic and metabolic capabilities of early life. PLoS One (9): e39912. doi:10.1371/journal.pone.0039912 (7 pages)

Baross, J. A. and C. D. Impey 2013. Astrobiology – A new synthesis. In C. D. Impey, J. L. Lunine and J. Funes (Eds.) *Frontiers of Astrobiology*, Pages 5-21, Cambridge University Press

Sogin, M.L. (chair), Collins, G. (co-chair), Baker, A., Baross, J. A. et al., 2012. Assessment of Planetary Protection Requirements for Spacecraft Mission to Icy Solar Systems Bodies. 83 pages. National Research Council, The National Academy Press, Washington, DC

Walter, A. (Chair), Baross, J. A. et al., 2012. Mars Sample Return backward contamination – Strategic advice and requirements. Report from the ESF-ESSC Study Group on MSR Planetary Protection Requirements. 59 pages. European Science Foundation (ESF) Press. Strassbourg, France.

Walter, N., Rettberg, P., Fragola, J., Raoul, H., Salminen, M., Ammann, Baross, J., Bennett, A., Bridges, J., Kerrest, A., Rummel, J., Stakebrandt, E., and Bowman, K. 2013. Mars sample return backward contamination - Planetary protection recommendations and design guidelines. In *Proceedings of the International Astronautical Congress, IAC*. (Vol. 1, pp. 196-199). International Astronautical Federation, IAF.

Anderson, R. E., M. T. Beltran, S. J. Hallem and J. A. Baross. 2013. Microbial community structure across fluid gradients in the Juan de Fuca Ridge hydrothermal system. *FEMS Microbiology Ecology* 83:324-339.

Anderson, R. E., W. J. Brazelton and J. A. Baross. 2013. The deep virosphere: Assessing the viral impact on microbial community dynamics in the deep subsurface. In R. M. Hazen, R. J., A. Jones and J. Baross (eds) *Carbon in the Earth*, Special issue of *Reviews in Mineralogy and Geochemistry* 75:649-675.

Stüeken, E. E., R. E. Anderson, J. S. Bowman, W. Brazelton, J. Colangelo-Lillis, A. D. Goldman, S. M. Som and J. A. Baross. 2013. Did life originate from a global chemical reactor? *Geobiology* 11:101-126.

Anderson, R. E., M. L. Sogin and J. A. Baross. 2014. Evolutionary strategies of viruses and cells in hydrothermal vent ecosystems revealed through metagenomics. (PLoS ONE 9(10): e109696. doi:10.1371/journal.pone.0109696

Anderson, R. E., M. L. Sogin and J. A. Baross. 2015. Biogeography and ecology of the rare and abundant biosphere in deep-sea hydrothermal vents. *FEMS Microbiology Ecology* 91:1-11 (doi: 10.1093/femsec/fiu016)

Glein, C. R., J. A. Baross and J. Hunter Waite Jr. 2015. The pH of Enceladus's ocean *Geochimica et Cosmochemica Acta*. 162:202-219.

Baross, J. A., and W. F. Martin. 2015. The ribofilm as a concept for life's origin. *Cell* 82:13-15 (doi:10.1016/j.cell.2015.06.038)

Baross, J. A. 2015. Introduction: NASA Astrobiology Strategy 2015. Pages 6-8. (NASA Astrobiology web site)

Rettberg, P., A. Anesio, V. Baker, J. A. Baross, et al., 2015. Review of the MEPAG report on Mars special regions. 66 pages, The National Academy Press, Washington DC,

Rettberg, P., A. Anesio, V. Baker, J. A. Baross, S. Caddy, E. Detsis, C. Foreman, E. Hauber, G. G. Ori, D. Pearce, N. Renno, G. Ruvkun, B. Sattler, M. Sanders, D. Smith, D. Wagner and F. Westall. 2016. Planetary protection and special regions on Mars – A suggestion for an updated definition. *Astrobiology* 16 (2): 1-7

Lin T. J, H. C. Ver Eecke, E. A. Breves, M. D. Dyar, J. W., Jamieson, H. D. Hannington, H. Dahle, J. L. Bishop, M. D. Lane, D. A. Butterfield, D. S. Kelley, M. D. Lilley, J. A. Baross and J. F. Holden. 2016. Mineralogical and microbial description of the interior habitable zones of three active hydrothermal chimneys from the Endeavour Segment Juan de Fuca Ridge. *Geochem. Geophys. Geosyst.* 17, [10.1002/2015GC006091](https://doi.org/10.1002/2015GC006091)

Kacor, B., L. Guy, E. Smith and J. Baross 2017. Resurrecting ancestral genes in bacteria to interpret ancient biosignatures. *Philosophical Transactions Royal Society A*, 375:20160352

Kacor, B., L. Guy, E. Smith and J. Baross 2017. Paleophenotype reconstruction as a window into historic biological states. CSH Laboratories, [bioRxiv](https://doi.org/10.1101/164038) <https://doi.org/10.1101/164038>

Stüeken, E. E., R. Buick, R. E. Anderson, J. A. Baross, N. J. Planavsky and T. W. Lyons. 2017. Environmental niches and metabolic diversity in Neoproterozoic lakes. *Geobiology* 15:767-783.

Baross, J. A. 2018. The rocky road to biomolecules. *Nature* 364:42-43.

Stamenkovic, V., Beegle, L. W., Arumugam, D. D., Baglioni, P., Barba, N., Baross, J. A. et al., 2019. The next frontier for planetary and human exploration. *Nature Astronomy* 3:116-120.

Baross, J. A., Anderson, R. E. and E. E. Stüeken. 2020. The Environmental Roots of the origin of Life. In *Planetary Habitability* (eds. V. Meadows, D. J. DesMarais, G. Arney, and B. Schmidt) The University of Arizona Press. Page 71-92.

Members of the Ocean Memory Project: Baross, J. A., Bradley, P., V. D'Amour., L., Deming, J. W., M. Joye., Kohn, D., Lee, C., Rutstein, R., Spence, H. R., M. Verdin, M. Weaver, T., and A. Yermakova. 2020. The Ocean Carries 'Memories' of SARS-CoV-2: We've been looking in the wrong place for a deeper understanding of the virus. Scientific American Opinion Piece, August, 2020.C.

Hand, K., C. B. Phillips, C. F. Chyba, B. Toner, K. Kakani, V. Orphan, J. Huber, C. M. Cavanaugh, M. Carlson, B. Christner, A. Templeton, J. Seewald, J. D. Hofgartner, J. P. Amend, B. N. Orcutt, D. H. Bartlett, P. Falkowski, R. Anderson, J. R. Spear, T. Shank, W. W. Fischer, R. M. Hazen, T. Hoehler, S. D'Hondt, J. Pitesky, K. Lynch, E. L. Shock, K. Craft, E. Boyd, C. H. House, A-L. Reysenbach, J. Glass, D. Fike, J. A. Baross et al., 2021. On the past, present, and future role of biology in NASA'S exploration of our solar system. Bulletin of the American Astronomical Society. 53(issue 4) e-id 229.

Früh-Green, G., D. S. Kelley, M. D. Lilley, M. Cannat, V. Chavagnac and J. A. Baross. 2022. Diversity of magmatism, hydrothermal processes and microbial life at mid-ocean ridges. Nature Reviews Earth & Environment. 3:852-871.

Manuscripts in Preparation

Baross, J. A. The origin of communication: Implications for the detection of intelligent life elsewhere in the universe.

Malone-France, D. and J. A. Baross. Process philosophy and astrobiology

Baross, J. A. Setting realistic planetary protection standards for sample return from planetary bodies

Baross, J. A. et al. Ocean origins of viruses: Coronavirus implications.