CURRICULUM VITAE

Edward Francis DeLong, Professor
Department of Oceanography, School of Ocean and Earth Science and Technology
Center for Microbial Oceanography: Research and Education
Co-Director, Simons Collaboration on Ocean Processes and Ecology
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http://en.wikipedia.org/wiki/Edward_DeLong
http://scholar.google.com/citations?user=wEkWbTQAAAAJ&hl=en
http://scope.soest.hawaii.edu
http://www.soest.hawaii.edu/oceanography/faculty/DeLong.html

Education:
A. S., Biology, Santa Rosa Junior College, 1980
B. S., Bacteriology, University of California Davis, 1982
Ph. D., Marine Biology, Scripps Institute of Oceanography, 1986

Thesis title: Adaptations of deep-sea bacteria to the abyssal environment

Professional Experience:

2015-	Visiting Professor, Massachusetts Institute of Technology
2014-	Professor of Oceanography, SOEST, University of Hawaii, Manoa
2014-	co-Director, Simons Collaboration on Ocean Processes and Ecology (SCOPE)
2006-2016	co-Director, Center for Microbial Oceanography: Research and Education
2004- 2015	Professor, Massachusetts Institute of Technology
1998-2004	Senior Scientist V, Monterey Bay Aquarium Research Inst.
1997-2002	Science Dept. Chair, Monterey Bay Aquarium Research Inst.
1997-1999	Associate Scientist III, Monterey Bay Aquarium Research Inst.
1996-1998	Associate Professor, Ecology, Evolution Marine Biol. Dept., UCSB
1992-1996	Assistant Professor, Biology Dept., UC Santa Barbara
1989-1991	Assistant Scientist, Woods Hole Oceanographic Inst.
1986-1989	Post-doctoral Research Assoc., Indiana U., Bloomington, Indiana
1984-1986	Teaching Assistant, Biology Dept., UC San Diego
1982-1986	Research Assistant, Scripps Inst. of Oceanography, UC San Diego
1981-1982	Research Assistant, University of California, Davis, Ca.

Professional interests: Physiology, biochemistry, ecology, and evolution of microbes. Environmental science and biogeochemical cycles. Microbial evolution and ecology. Genomic analyses of microbial evolution, ecology and natural history. Systems biology of natural microbial populations. Development of molecular tools for microbial characterization and quantification.

Honors and Awards
Independent Study Award, Woods Hole Oceanographic Inst., September, 1989
Office of Naval Research, Young Investigator Award, March 1990
American Society for Microbiology, Young Investigator Travel Award, May 1990

DuPont Young Faculty Award, April 1993.
Honorary Professorship, University of Queensland, Brisbane, Australia, 1999-2002
Adjunct Professor UC Santa Cruz, 1998-2003.
Elected Fellow in the American Academy of Microbiology, August 2000
Courtesy Professor appointment in the Biology Dept., Stanford University, May 2002
Apple Bioinformatics Cluster Award, June 2004
Moore Investigator in Marine Microbiology, August, 2004.
Elected Fellow in the American Academy of Arts and Sciences, May 2005.
Vladimir Ivanovich Vernadsky Medal of the European Geosciences Union, 2008
Proctor and Gamble Award in Applied and Environmental Microbiology, 2008
Elected, Member of the Board of Governors, American Academy of Microbiology, 2008
Elected Fellow, National Academy of Sciences U. S. A., April 2008
American Society for Microbiology D.C. White Research and Mentoring Award, 2009
Elected Fellow, American Association for the Advancement of Science, 2011
UC Davis College of Biological Sciences Outstanding Alumni Award, UC Davis, October 2012
Moore Investigator in Marine Microbiology, December, 2012.
A. G. Huntsman Medal for Excellence in Marine Science, November 2014
Elected Associate, European Molecular Biology Organization, May 2015
Elected, Vice President/President Elect International Society of Microbial Ecology, 2016-2022

Professional Affiliations:
American Academy of Microbiology; American Society of Microbiology; American Academy of Microbiology; American Association for the Advancement of Science; American Society of Limnology and Oceanography; American Academy of Arts and Science; U.S. National Academy of Science

Special Appointments and Professional Activity
Editorial Board member, Applied and Environmental Microbiology 1990-2005.
Editorial Board member, Marine Biotechnology, 1999 - 2002
Editorial Board member, Environmental Microbiology, 1999-2010
Invited participant, Workshop on "Transfer of the tools of biotechnology and molecular biology to the ocean sciences", September, 1988
Invited participant, Jan. 1991, Workshop molecular methods in ecology, DOE, Monterey, CA
NSF Panel member, NSF Biological Oceanog. Review Panel, January, 1993
Committee member, National Research Council Ocean Studies Board Committee on Biological Diversity in Marine Systems
Marine Biological Diversity Workshop, May 23-26, 1994, Irvine, CA
DOE Panel member, Microbial Genome Initiative, Washington DC., July, 1994.
NSF Panel Member, LExEn Intiative, June 22, 1997
Scientific adviser, The Microbial Literacy Committee, Amer. Soc. Microbiol., Sept. 1997
Invited participant, NSF LexEn workshop, June 1998.
Invited participant, NRC/NAS Space Studies Board Workshop on the Size Limits of Very Small Microorganisms, October 1998, Washington DC.
Invited NSF delegate, SCAR meeting on Research planning for Lake Vostok, Sept. 1999
Instructor, Antarctic Course in Integrative Biology, McMurdo Sta. Antarctica, Jan 2000.
Invited participant, NSF Workshop on Marine Microbial Genomics, April 2000.
Member, Rev. Comm. West Cost &Polar Regions Underwater Research Cntr, July 2000
Convener, Ridge Theoretical Workshop on the Deep Subsurface Biosphere, July 2000.

Convener, ASM Colloqium on Biogeology, November, 2000.
Invited participant, NSF Workshop on White House OST interagency "Microbe Project'
Member, Advisory Committee, SETI Institute program on Life in the Universe.
Co-organizer, ASM Colloquium on Geobiology, Tuscon, AZ, Nov 2000
Chair, Microbial Ecology Div, ASM Annual Meeting Program Committee, 2000-2001.
Member, Scientific Advisory Board (Fachbeirat) for Max-Planck-Institut fur Marine Mikrobiologie 2002-2006.
Co-chair and organizer, ASM Colloquium on 'The Global Genome Question', 2002
Member, NRC Committee on Implementation of Deep Sea Observatories, 2002
Scientific adviser, Canadian Institute for Advanced Research Evolutionary Program, 2002-2007
Member, DOE/Joint Genome Institute Policy Board, 2003-2010
Member, DOE/Joint Genome Institute Scientific Advisory Committee, 2003-2010.
Editor, Environmental Microbiology, 2004-2011
Member, Board of Reviewing Editors, Science Magazine, 2005-2010
Member, National Research Council Committee on Metagenomics, 2006
Chair, DOE-Joint Genome Institute Users Committee, 2005-2007
Member, CAMERA Scientific Advisory Board, 2006-present
Member, Board of Governors, American Society for Microbiology, 2008-2013
Co-Chair, American Academy of Microbiology Colloquium on Climate Change and Biogeochemical cycles, 2009-2011
Co-Director, NSF STC Center for Microbial Oceanography: Research & Education. 2006-present
Member, MIT steering committee, Dalai Lama Center for Ethics and Transformative Values, 2009-2015
Member, Expert Advisory Committee, Biosciences Area, LBNL 2012-present
Member, European Molecular Biology Organization Membership Search Committee, 2012 – 2014
Member, Visiting Committee, UC Berkeley Plant & Microbial Biol. Dept Review, March 2013
Editorial Board Member, Proceedings of the National Academy of Science, USA 2010-present
Member, Class VI Temporary Nominating Committee, Natl. Acad. Science, 2012-present
Member, Expert Assessment Committee, Earth and Environmental Science Area, Lawrence Berkeley National Laboratory 2017-present
Member, Natl. Acad. Sci. Chemical Sciences Roundtable Seminar Committee, 2016
President Elect, International Society for Microbial Ecology (ISME), 2016-2022
Chair, International Society for Microbial Ecology Awards Committee, 2017
Chair, International Society for Microbial Ecology Nomination Committee, 2017
Co-chair, National Microbiome Data Collaborative workshop planning committee (with Claire Fraser), February 2017 – present.
Chair, National Academy of Science, U.S.A., Class VI Chair, Temporary Nominating Committee, May 2017- present.
National Academy of Science, U.S.A., Class Membership Committee Member at Large, 2017-2018.

Scientific field expeditions and cruises
1985, Palau Trench, Sulu Sea, Celebes Sea; RV Th. Washington, cruise scientist
1987, Sargasso Sea, RV Weatherbird I, cruise scientist
1988, Central North Pacific, RV Moana Wave, cruise scientist
1992, Oregon-Hawaii transect, RV Wecoma, cruise scientist and blue water diver
1993, Santa Barbara Channel , RV Gordon Sproul, cruise scientist
1993, Santa Barbara Channel, Delta submersible cruise, Chief scientist

1995, Drake Passage/Bransfield Straight, RV Polar Duke, cruise scientist
1995, Palmer Station Antarctica, Station Science Leader and field team leader
1996, Drake Passage/Bransfield Straight, RV Polar Duke, cruise scientist
1996, Palmer Station Antarctica, Station Science Leader and field team leader
2000, Instructor, Field course in Antarctic Biology, McMurdo Station, Antarctica
Numerous coastal cruises with MBARI, and University of Hawaii HOT and C-MORE field efforts

Publications

1. **DeLong**, E. F., L. Baumann, R. D. Bowditch, and P. Baumann. 1984. Evolutionary relationships of superoxide dismutases and glutamine synthetases from marine species of *Alteromonas*, *Oceanospirillum*, *Pseudomonas* and *Deleya*. Arch. Microbiol. 138: 170-178
2. **DeLong**, E. F. and A.A. Yayanos. 1985. Adaptation of the membrane lipids of a deep-sea bacterium to changes in hydrostatic pressure. Science 228:1101-1103.
3. **DeLong**, E. F. and A. A. Yayanos. 1986. Biochemical function and ecological significance of novel bacterial lipids in deep-sea procaryotes. Appl. Environ. Microbiol. 51: 730-737
4. **DeLong**, E. F., D. Steinhauer, A. Israel, and K. H. Nealson. 1987. Isolation of the lux genes from *Photobacterium leiognathi* and expression in *Escherichia coli*. Gene 54:203-210
5. Yayanos, A. A. and E. F. **DeLong**. 1987. Deep-sea bacterial fitness to environmental temperatures and pressures. In Current Perspectives in High Pressure Biology, H.W. Jannasch, R. E. Marquis, and A. M. Zimmerman, eds., pp.17-32, Academic Press, London.
6. **DeLong**, E. F. and A. A. Yayanos. 1987. Properties of the glucose transport system in some deep-sea bacteria. Appl. Environ. Microbiol. 53:527-532
7. Giovannoni, S. J., E. F. **DeLong**, G. J. Olsen and N. R. Pace. 1988. Phylogenetic group-specific oligodeoxynucleotide probes for identification of single microbial cells. J. Bacteriol. 170: 720-726
8. Turner, S., E. F. **DeLong**, S. J. Giovannoni, G.J. Olsen and N. R. Pace. 1989. Phylogenetic analysis of organisms and natural populations using ribosomal RNA sequences. In Microbial Mats; Ecological Physiology of Benthic Microbial Communities, Y. Cohen and E. Rosenberg, eds., Am. Soc. Microbiol., pp. 390-401
9. **DeLong** E.F., G. Wickham, and N. R. Pace. 1989. Phylogenetic stains: Ribosomal RNA-based probes for identification of single microbial cells. Science 243:1360-1363.
10. **DeLong** E. F., T. M. Schmidt and N. R. Pace. 1989. Analysis of single cells and oligotrophic picoplankton populations using 16S rRNA sequences, In Recent Advances in Microbial Ecology, T. Hattori, Y. Ishida, Y. Maruyama, R. Morita, and A. Uchida, eds., Japan Sci. Soc. Press, Tokyo, pp. 697-701
11. **DeLong** E. F. and J. Shah. 1990. Fluorescent ribosomal RNA probes for clinical application. Clin. Diagnos. 28:41-44
12. Giovannoni, S. J., T. M. Schmidt, E. F. **DeLong** and N. R. Pace. 1990. Tangential flow filtration and preliminary phylogenetic analysis of marine picoplankton. Appl. Environ. Microbiol. 56 :2572-2575
13. Schmidt, T. M., E. F. **DeLong** and N. R. Pace. 1991. Analysis of a marine picoplankton community by 16S rRNA gene cloning and sequencing. J. Bacteriol. 173: 4371-4378
14. Distel, D., E. F. **DeLong**, and J. W. Waterbury. 1991. Phylogenetic characterization and in situ localization of the bacterial symbionts of shipworms by using 16S rRNA sequence

analysis and oligodeoxynucleotide probe hybridization. Appl. Environ. Microbiol. 57: 2376-2382

15. **DeLong** E. F. 1991. Molecular systematics, microbial ecology and single cell analysis. In Single Cell and Particle Analysis in Oceanography,S. Demerge, ed., NATO ASI Series, Springer-Verlag, Heidelberg, Vol. G27, pp. 237-257.
16. Schmidt, T. M. , E. F. **DeLong** and N. R. Pace. 1991. Phylogenetic identification of uncultivated microorganisms in natural habitats. In Rapid Methods and Automation in Microbiology and Immunology, A. Vaheri, R. C. Tilton, A. Balows, eds., Springer-Verlag, Berlin, pp. 37-46.
17. **DeLong**, E. F. 1992. Aquatic habitats: High Pressure Environments, In Joshua Lederberg, ed, Encyclopedia of Microbiology, Academic Press, Vol. 2, pp 405-417.
18. **DeLong**, E. F. 1992. Archaea in coastal marine environments, Proc. Natl. Acad. Sci. USA, 89: 5685-5689.
19. **DeLong**, E. F. and B. B. Ward. 1992. Molecular approaches in biological oceanography. Oceanus 35:47-54.
20. **DeLong**, E. F., R. B. Frankel and Dennis A. Bazylinski. 1993. Multiple evolutionary origins of magnetotaxis in bacteria. Science 259:803-806
21. Lim, E. L., L. A. Amaral, D. A. Caron and E. F. **DeLong**. 1993. Application of ribosomal RNA-based probes for observing marine nanoplanktonic protists. Appl. Environ. Microbiol. 59:1647-1655
22. **DeLong**, E. F. 1993. Single cell identification using fluorescently labeled, ribosomal RNA specific probes. In Handbook of Methods in Aquatic Microbial Ecology, P. F. Kemp, B. F. Sherr, E. B. Sherr and J. J. Cole,eds, Lewis Pub., Ann Arbor, pp. 285 - 294.
23. **DeLong**, E. F., D. G. Franks and A. L. Alldredge. 1993. Phylogenetic diversity of aggregate-attached versus free-living marine bacterial assemblages. Limnol. Oceanog. 38 :924-934.
24. Pace, N. R. , E. R. Angert, E. F. **DeLong**, T. M. Schmidt and G. S. Wickham. 1993. New perspectives on the natural microbial world, *In* Genetics and molecular biology of industrial microorganisms-5, Hegeman, G. (ed.), ASM Press, pp. 77-84.
25. Ledyard, K. M. , E. F. **DeLong** and J. W. Dacey. 1993. Characterization of a DMSP-degrading bacterial isolate from the Sargasso Sea. Arch. Microbiol. 160: 312-318
26. DiChristina, T. J., and E. F. **DeLong**. 1993. Design and application of rRNA-targeted oligonucleotide probes for the dissimilatory iron- and manganese-reducing bacterium *Shewanella putrefaciens*. Appl. Environ. Microbiol. 59: 4152-4160
27. DiChristina, T. J., and E. F. **DeLong**. 1994 Isolation of anaerobic respiratory mutants of *Shewanella putrefaciens* and genetic analysis of mutants deficient in anaerobic growth on Fe^{3+}, J. Bacteriol. 176:1468-1474.
28. **DeLong**, E.F.1994. Antarctic Microbiology. Science 263: 401-402 (book review)
29. **DeLong**, E. F., K. Y. Wu, B. B. Prezelin and R. V. M. Jovine. 1994. High abundance of Archaea in Antarctic marine picoplankton. Nature 371: 695-697.
30. Butman, C.A., J. Carlton, G. W. Boehlert, S. H. Brawley, E. F. **DeLong**, J. F. Grassle, J. B. C. Jackson, S. L. Levin, A. R. M. Nowell, R. T. Paine, S. R. Palumbi, G. J. Veermeij, and L. Watling. 1995. Understanding Marine Biodiversity, National Academy Press
31. Brantley, S. E., T. F. Molinski, C. M. Preston, and E. F. **DeLong**. 1995. Brominated fatty acids from Xestospongia sp., a marine sponge-bacteria association. Tetrahedron 51: 7667-7672.
32. **DeLong**, E. F. 1995. Diversity of naturally-occurring prokaryotes: a beginning, In Microbial diversity in Space and Time, Plenum Press, pp. 125 - 133

33. Stein, J. , T. L. Marsh, K. Y. Wu, H. Shizuya, and E. F. **DeLong**. 1996. Characterization of uncultivated marine prokaryotes: isolation and analysis of a 40 kilobase genome fragment from a planktonic marine Crenarchaeote, J. Bacteriol.178: 591-599.
34. Lim, E. L, D. A. Caron and E. F. **DeLong**. 1996. Development and field application of a quantitative method for the examination of natural assemblages of protists using oligonucleotide probes, Appl. Environ. Microbiol. 62: 1416-1423
35. Preston, C. M., K. Y. Wu, T. F. Molinski, and E. F. **DeLong**. 1996. A psychrophilic crenarchaeon inhabits a marine sponge; *Cenarchaeum symbiosum*, gen. nov. sp. nov. Proc. Natl. Acad. Sci. USA, 93: 6241-6246.
36. Hovanec, T. A. and E. F. **DeLong**. 1996. Comparative analysis of nitrifying bacteria associated with freshwater and marine aquaria. Appl. Environ. Microbiol., 62: 2888-2896.
37. Massana, R., A. E. Murray, K. Y. Wu, and E. F. **DeLong**. 1997. Vertical distribution and phylogenetic characterization of marine planktonic Archaea in the Santa Barbara Channel. Appl. Environ. Microbiol. 63: 50-56
38. **DeLong**, E. F. 1997. Marine microbial diversity: the tip of the iceberg. Trends Biotechnol., 15:203-207
39. **DeLong**, E. F. D. G. Franks and A. A. Yayanos. 1997. Evolutionary relationships of cultivated psychrophilic and barophilic deep-sea bacteria. Appl. Environ. Microbiol. 63: 2105 - 2108
40. Schleper, C. Swanson, R. V., Mathur, E. J., and E. F. **DeLong**. 1997. Characterization of a DNA polymerase from the uncultivated psychrophilic archaeon *Cenarchaeum symbiosum*. J. Bacteriol. 179:7803-7811.
41. **DeLong**, E. F. 1997. Molecular phylogenetics: new perspective on the ecology, evolution, and biodiversity of marine organisms, In Molecular Approaches in the Study of the Ocean, K. Cooksey, ed., Chapman and Hall, pp. 1-27.
42. Hovanec, T. A., L. T. Taylor,. A. Blakis, and E. F. **DeLong**. 1998. *Nitrospira*-like bacteria associated with nitrite oxidation in freshwater aquaria. Appl. Environ. Microbiol. 64:258-264
43. E. F. **DeLong**, L. L. King, R. Massana, H. Cittone, A. Murray, C. Schleper and S. G. Wakeham. 1998. Dibiphytanyl ether lipids in nonthermophilic crenarchaeotes. Appl. Environ. Microbiol. 64:1133-1138.
44. **DeLong**, E. F. 1998. Archaeal means and extremes. Science 280: 542-543.
45. Rath, J., K. Y. Wu, G. J. Herndl and E. F. **DeLong**. 1998. High phylogenetic diversity in a marine snow-associated bacterial assemblage. Aquatic Microbial Ecology 14: 261-269.
46. Murray, A. E., C. M. Preston,. R. Massana, L. T. Taylor, A. Blakis, K. Y. Wu and E. F. **DeLong**. 1998. Seasonal and spatial variability of bacterial and archaeal assemblages in the coastal waters off Anvers Island, Antarctica. Appl. Environ. Microbiol. 64: 2585-2595.
47. Vergin, K. L, E. Urbach, J. L. Stein, E. F. **DeLong**, and S. J. Giovannoni. 1998. Screening of a fosmid library of marine environmental genomic DNA fragments reveals four clones related to the *Planctomycetales*. Appl. Environ. Microbiol. 64:3075-3078.
48. Massana, R., Taylor, T., Murray, A., Jeffrey, W., and E. F. **DeLong**. 1998. Distribution of marine planktonic archaea in the Gerlache Straight Antarctica during early Spring. Limnol. and Oceanog. 43: 607-617.
49. Schleper, C., Preston, C. M. , Feldman, R. A., Ke Ying Wu, E. F. **DeLong**, and R. V. Swanson. 1998. Genomic analysis reveals chromosomal variation in natural populations of the uncultured psychrophilic archaeon *Cenarchaeum symbiosum* **,** J. Bacteriol. 180:5003-5009.

50. DeLong E. F. 1998. Novel niches. Trends Microbiol. 6: 416 (book review).
51. DeLong, E. F. 1998. Everything in moderation : Archaea as "nonextremophiles" Curr. Opin. Genet. Develop. **8**:649-654.
52. Sandler, S. J., Hugenholtz, P., Schleper, C., **DeLong**, E. F. Pace, N. R., and A. J. Clark. 1999. Diversity of radA genes from cultured and uncultured Archaea: comparative analysis of their putative RadA proteins and their use as a phylogenetic marker. J. Bacteriol., **181**:907-915.
53. DeLong, E. F. 1999. The planetary crucible : Bacterial biogeochemistry. Trends Microbiol, 7: 133-134. (book review).
54. DeLong, E. F. 1999. Diminutive cells in the oceans - unanswered questions, pp. 81-84, In Size Limits of Very Small Microorganisms: Proceedings of a Workshop, Steering Group on Astrobiology of the Space Studies Board, National Research Council, 1999.
55. K.-U. Hinrichs, J. M. Hayes, S. P. Sylva, P. G. Brewer, and E. F. **DeLong**, 1999. Methane-consuming archaea Molecular-isotopic and phylogenetic evidence, Nature **398**:802-805.
56. DeLong , E. F., Schleper, C., Feldman, R., and R. V. Swanson. 1999. Application of genomics for understanding the evolution of hyperthermophilic and nonthermophilic Crenarchaeota, Biol. Bull. **196**:363-366
57. A. E. Murray, K. Y. Wu, C.L. Moyer, D. M. Karl and E. F. **DeLong**· 1999. Evidence for circumpolar distribution of planktonic Archaea in the Southern Ocean. Aquat. Microb. Ecol.18: 263-273.
58. Caron, DA; Lim, EL; Dennett, MR; Gast, RJ; Kosman, C; **DeLong**, EF. 1999. Molecular phylogenetic analysis of the heterotrophic Chrysophyte genus Paraphysomonas (Chrysophyceae), and the design of rRNA-targeted oligonucleotide probes for two species. J. Phycol., 35:824-837.
59. DeLong, E.F., Taylor, L.T. , Marsh, T. L. and C. M. Preston. 1999. Visualization and enumeration of marine planktonic archaea and bacteria using polyribonucleotide probes and fluorescence in situ hybridization. Appl. Environ. Microbiol. 65: 5554-5563.
60. Murray, A. E, Blakis, A., Massana, R., Strawzewski, S. Passow, U., Alldredge, A. and E. F. **DeLong**. 1999. A time series assessment of planktonic archaeal variability in the Santa Barbara Channel. Aquat. Microb. Ecol. 20: 129-145.
61. Suzuki, M. T. and E. F. **DeLong**. 2000. Marine prokaryote diversity, in Biodiversity of microbial life: foundation of the Earth's Biosphere, Staley, J. T. and Reysenbach, A.L., eds, J. Wiley and Sons, Inc., N.Y., N.Y., pp. 209-234.
62. Orphan, V. J., L. T. Taylor, D. Hafenbradl, and E. F. **DeLong**. 2000. Culture-dependent and -independent characterization of microbial assemblages associated with high temperature oil reservoirs. Appl. Environ. Microbiol. 66:700-711.
63. DeLong, E. F. 2000. A phylogenetic perspective on hyperthermophilic microorganisms, in Hyperthermophilic Enzymes, Methods in Enzymology series, Academic Press, 330:3-11.
64. Massana, R., E. F. **DeLong** and C. Pedros-Alios. 2000. A few cosmopolitan phylotypes dominate planktonic archaeal assemblages in widely different oceanic provinces. Appl. Environ. Microbiol. 66:1777-1787.
65. Béjà, O., Suzuki, M. T., Koonin, E.V., Aravind, L., Hadd, A., Nguyen, L.P., Villacorta, R., Amjadi, M., Garrigues, C., Jovanovich, S.B., Feldman, R. and E. F. **DeLong**. 2000. Construction and analysis of Bacterial Artificial Chromosome libraries from a natural microbial assemblage, Environ. Microbiol.2:516-529.
66. Béjà, O., L. Aravind, E. V. Koonin, M. T. Suzuki, A. Hadd, L. P. Nguyen, S. B. Jovanovich, C. Gates, R. A. Feldman, J. L. Spudich, E. N. Spudich, and E. F. **DeLong**.

2000. Bacterial rhodopsin: evidence for a new type of phototrophy in the sea. Science 289: 1902-1906.
67. DeLong, E. F. 2000. Resolving a methane mystery. Nature 407: 577-579.
68. Suzuki, M. T., L. T. Taylor, and E. F. **DeLong**. 2000. Quantitative analysis of small subunit ribosomal RNA genes in mixed microbial populations employing 5' nuclease assays, Appl. Environ. Microbiol. 66:4605-4614.
69. Dawson, S. C., **DeLong** E. F. and N. R. Pace. 2000. Phylogenetic and Ecological Perspectives on Uncultured Crenarchaeota and Korarchaeota. In The Prokaryotes, Springer Verlag, Electronic publication.
70. DeLong, E. F. 2000. Extreme genomes, Genome Biology 1:reviews1029.1-1029.3
71. Karner, M, E. F. **DeLong**, and D. M. Karl. 2001. Archaeal dominance in the mesopelagic zone of the Pacific Ocean. Nature 409:507-510.
72. Suzuki, M. T. , Preston, C. F. Chavez, and E. F. **DeLong**. 2001. Quantitative mapping of bacterioplankton populations in seawater: field tests across an upwelling plume in the Monterey Bay. Aquat. Microb. Ecol., 24:117-127.
73. Orphan, V. J., K.-U., Hinrichs, W. Ussler III, C. K. Paull, L. T. Taylor, S. Sylva, J. M. Hayes and E. F. **DeLong**. 2001. Comparative analysis of methane-oxidizing archaea and sulfate-reducing bacteria in anoxic marine sediments. Appl. Environ. Microbiol. 67:1922-1927.
74. DeLong, E. F. 2001. Microbial seascapes revisited. Curr. Op. Microbiol. 4:290-295.
75. DeLong, E. F. and N. R. Pace. 2001. Environmental Diversity of Bacteria & Archaea, Systematic Biol. 50:1-9.
76. Suzuki, M. T., Béjà, O., Taylor, L.T. and E. F. **DeLong**. 2001. Phylogenetic analysis of ribosomal RNA operons from uncultivated coastal marine bacterioplankton, Environ. Microbiol. 3:323-331.
77. Béjà, O., E. N.. Spudich, J. L. Spudich, M. LeClerc, and E. F. **DeLong**. 2001. Proteorhodopsin phototrophy in the ocean. Nature 411:786-789.
78. Orphan, V. J., C. House, K. U. Hinrichs, K. McKeegan, and E.F. **DeLong.** 2001. Methane-consuming archaea revealed by directly coupled isotopic and phylogenetic analysis. Science 293:484 487.
79. Béjà O., E. V. Koonin, L. Aravind, L. T. Taylor, H. Seitz, J. L. Stein, D. C. Bensen, R. A. Feldman, R. V. Swanson, and E. F. **DeLong**. 2001. Comparative Genomic Analysis of Archaeal Genotypic Variants in a Single Population and in Two Different Oceanic Provinces. Appl. Environ. Microbiol. 68: 335–345.
80. C. O. Wirsen, S. M. Sievert, C. M. Cavanaugh, S. J. Molyneaux, A. Ahmad,L. T. Taylor, E. F. **DeLong**, and C. D. Taylor. 2002. Characterization of an Autotrophic Sulfide-Oxidizing Marine *Arcobacter* sp. That Produces Filamentous Sulfur. Appl. Environ. Microbiol. 68: 316–325
81. Béjà O., Suzuki, M. T., Heidelberg, J.F., Nelson, W.C., Preston, C.M., Hamada T., Eisen, J.A., Fraser, C., and E. F. **DeLong**. 2002. Unexpected diversity among marine aerobic anoxygenic phototrophs. Nature 415:630-633.
82. Pernthaler, A,, C.M. Preston, J. Pernthaler, E. F. **DeLong**, and R. Amann. 2002. Comparison of fluorescently labeled oligonucleotide and polynucleotide probes for the detection of pelagic marine bacteria and archaea. Appl. Environ. Microbiol. 68:661-667.
83. DeLong, E. F. 2002. Towards microbial systems science: integrating microbial perspectives, from genomes to biomes. Environ. Microbiol. 4:9-10.

84. Victoria J. Orphan, Christopher H. House, Kai-Uwe Hinrichs, Kevin D. McKeegan and Edward F. **DeLong**. 2002. Multiple archaeal groups mediate methane oxidation in anoxic cold seep sediments, Proc. Natl. Acad. Sci 99: 7663-7668.
85. DeLong, E. F. 2002. Mille milliards de mille microbes. La Recherche 355: 54-57.
86. DeLong E. F. and P. Chandler. 2002. Power from the sea. Nature Biotech.. 20:788-789.
87. DeLong E. F. 2002. Microbial population genomics and ecology. Curr. Op. Microbiol. 5: 520-524
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198. Jarone Pinhassi1, **Edward F. DeLong**, Oded Béjà, José M. González and Carlos Pedrós-Alió. 2016. Marine microbial rhodopsins: genetic diversity, physiology and ecology. Micro. Mol. Bio. Rev., 80:929-54. doi: 10.1128/MMBR.00003

199. Toshiaki Hosaka, Susumu Yoshizawa, Yu Nakajima, Noboru Ohsawa, Masakatsu Hato. **Edward F. DeLong**, Kazuhiro Kogure, Shigeyuki Yokoyama, Tomomi Kimura-Someya, Wataru Iwasaki, and Mikako Shirouzu. 2016. Structural mechanism for light-driven transport by a new type of chloride ion pump. J. Biol. Chem. 291:17488-95. doi: 10.1074/jbc.M116.728220

200. Daniel J. Repeta, Sara Ferrón, Oscar A. Sosa, Carl G. Johnson, Lucas D. Repeta, Marianne Acker, **Edward F. DeLong**, David M. Karl. 2016. Aerobic methane production from the microbial degradation of marine dissolved organic matter. Nature Geoscience 9: 884–887.

201. Rene Boiteau, Nicholas Hawco, Daniel Mende, Matthew McIlvin, Peter Sedwick, Mak Saito, **Edward F. Delong**, Daniel Repeta**.** 2016. Marine microbes adapt to iron scarcity through the production of amphiphilic siderophores. Proc.Natl. Acad Sci. U.S.A. 113:14237-14242.

202. Scott M. Gifford, Jamie Becker, Oscar A. Sosa, Daniel J. Repeta, and **Edward F. DeLong.** 2016. Quantitative transcriptomic analysis of a streamlined marine methylotroph grown on low and high molecular weight DOC. mBio e01279-16.

203. Samuel T. Wilson, Frank O. Aylward, Francois Ribalet, Benedetto Barone, John R. Casey, Paige Connell, Sara Ferrón, Kendra A. Turk, Alice Vislova, E. Virginia Armbrust, David A. Caron, Matthew J. Church, Jonathan P. Zehr, David M. Karl, **Edward F. DeLong.** 2016. Coordinated regulation of growth, activity and transcription in natural populations of the unicellular nitrogen-fixing cyanobacterium *Crocosphaera*. Nature Microbiology, in press.

204. Mende DR, Bryant, J.A., Aylward FO, Eppley JM, Nielsen TN, Karl, DM, **DeLong EF.** 2016. Environmental drivers of a genomic transition zone in the ocean's interior, Nature Microbiology, in press.

205. Frank O. Aylward, Dominique Boeuf, Daniel R. Mende, Elisha Wood-Charlson, Alice Vislova, John M. Eppley, Anna E. Romano, **Edward F. DeLong.** 2017. Diel Production and Chronic Persistence of Viral Populations in the Ocean's Euphotic Zone. Nature, in review.

Other Professional Activities

Invited speaker, San Diego State University, October, 1987

Invited speaker, University of California, Davis, April, 1988

Invited instructor, Grey Freshwater Biological Institute, "Application of molecular techniques to studies in microbial ecology", July, 1988

Invited speaker, Sept., 1989, 5th Int. Symp. in Microbial Ecol., Kyoto, Japan

Invited speaker, May 1989, Meeting of Soc. for Stain Technology, Louisville, KY

Invited instructor, June 1990, M.B. L., Marine Ecology Course, Woods Hole, MA

Invited instructor, June 1990, M. B. L., Microbial Diversity , Woods Hole, MA

Invited speaker, Marine Science Department October, 1990, Florida St. University

Distinguished speaker, November 1990, NATO Advanced Study Institute, Maratea, Italy

Invited instructor, July. 1991, Marine Biological Laboratory, Marine Ecology Course, Woods Hole, MA

Invited speaker, Oct., 1991, International Marine Biotechnology Conf., Balt. MD.

Invited speaker, Scripps Inst. of Oceanography, April, 1992

Invited Speaker, Gordon Conference in Environmental Science, June 1992

Invited Instructor, Molecular biology of marine organisms, Catalina Is. July 1992

Invited speaker, Biology Dept., University of Southern Ca., December 1, 1992

Invited speaker, Agouron Institute, La Jolla, Ca., March 12, 1993

Invited speaker, California Institute of Technology, April 28, 1993

Invited speaker, DOE Small Genome Workshop, Washington DC, July 1993

Invited speaker, Microbiology Dept. University of WA. November, 1993

Invited speaker, Biology Dept., Univ. No. Carolina, Wilmington, November 1993

Invited speaker, Biol. Dept., Harvey Mudd College, Los Angeles, December 1993

Invited speaker, West Coast Bacterial Physiologists, Pacific Grove CA, , Dec. 1993

Invited speaker, International Union of Microbiological Sciences Meeting, Session on microbial diversity, Prague, Czech Republic, July 3-8.

Invited speaker, "Symposium on microbial diversity in space and time", sponsored by International Committee on Microbial Ecology", Tokyo, Japan, Oct. 24-26, 1994.

Invited speaker, Ocean Research Institute, Tokyo Univ., Japan, Oct. 27, 1994.

Invited speaker, Syposium on microbial diversity, Ann meeting ASM, May 1995

Invited speaker, June 1, 1995, Microbiology Dept. Seminar, Univ. Georgia, Athens, GA

Invited speaker, June 11, 1995 International Symposium on exploration of microbial diversity, Goslar, Germany

Invited speaker, June 14, 1995, Gesellschaft fur Biotechnologische, Braunschweig, Germany

Invited speaker, Symposium on the Application of molecular techniques to environmental problems, 96th annual meeting of the ASM, May 1996.

Invited speaker, Gordon Conference on Archaea, Ecology, metabolism and molecular biology, July 14, 1996.

Invited speaker, Monterey Bay Aquarium Research Insitute Seminar Series, January, 1997.

Invited speaker, Ridge Symposium on the Deep Subsurface Biosphere, Washington D. C., March 18, 1997

Invited speaker, ASM Annual Meeting, Session on Impact of genomics on research agenda, Miami , FL May 5 1997.

Invited speaker, NSF 4th annual hyperthermophile symposium, San Diego Ca, May 14, 1997.

Invited speaker, Center for Microbial Ecology, East Lansing MI May 22, 1997.

Invited speaker, Center for Environmental Biotechnology, Lawrence Berkeley Natl Lab, June 5, 1997.

Invited speaker, Plant and Microbial Biology Dept. , UC Berkeley, September 22, 1997

Invited speaker, Workshop on Molecular Evolution, Marine Biological Laboratory, Woods Hole, MA, October, 1997.

Invited speaker, Dept. of Microbiology, Stanford Univ., Palo Alto, Ca , March 1998.

Invited speaker, Annual meeting, American Society for Microbiol., May 1998, Atlanta Ga.

Invited speaker, Closing Address, Argintine Society for Microbiology Annual Meeting, August 1998, Buenos Aires, Argentina.

Invited participant, Space Studies Science Board, National Research Council, National Academy of Sciences, Workshop on size limits of very small microorganisms, Oct. 1998

Invited speaker, Dept. of Biology, University of Maine, Orono Maine, Nov. 1998

Invited speaker, Skidaway Instit. of Oceanography, Savannah, Georgia. December 1998

Invited speaker, Biology Dept. Scripps Instit. of Oceanog., January 1999

Invited speaker, Microbiology Dept, University of Illinois, Urbana, April 1999

Invited speaker, NASA AMES, Palo Alto, CA April 1999

Invited speaker, Canadian Soc. for Microbiol., Annual Meeting, Montreal, CA, June 1999

Invited speaker, Society of Naturalists, Evolution Meeting, Madison, WI, June 1999

Invited speaker, Int. Union Microbiol. Sci. Ann. Meeting, Sydney Australia, August1999.

Invited, Australian Society of Microbiology, "Australia speaking tour", August 1999 :
Invited speaker, University of Queensland, Brisbane, Australia, Aug 22 & 23
Invited speaker, ASM Canberra branch, Australia, Aug. 26
Invited speaker, ASM Tasmania branch, Australia, Aug. 28
Invited speaker, Flinders Univ., Adelaide, Australia, Aug 30
Invited speaker, Univ. of Adelaide, Australia, Aug 30

Plenary speaker, 11th Annual Genome Sequencing Conf., Miama, FL, Sept. 1999

Invited NSF delegate, SCAR meeting on Research planning for Lake Vostok, Sept. 1999

Invited speaker, NOAA/NOS, Charleston, South Carolina, April, 2000.

Invited speaker, Rutgers University, New Brunswick, NJ, April 2000.

Invited speaker, 101 Annual Meeting of the ASM, Los Angeles, CA, May 2000

Lecturer, MBL Microbial Diversity course, June 2000.

Speaker, Ridge Theoretcial Institute on the Subsurface Biosphere, Aug 2000

Plenary speaker, 12th Annual Genome Sequencing Conf., Miama, FL, Sept. 2000

Invited speaker, 8th Small Genomes Conference, Lake Arrowhead, CA, Sept 2000

Invited speaker,. Ridge In situ sensors workshop, Aptos,. CA Oct 2000

Invited Speaker,. ASM/TIGR Microbial Genome Conference, Monterey, Jan 2001

Keynote speaker, Univ. Cal. Berkeley Microbiology Student Assoc., April 2001

Invited speaker, Univ of Colorado, April, 2001

Invited speaker, Univ. of Washington Dept. of Oceanog. Dept, May, 2001.

Invited participant, DOE Workshop on the Role of Biotechnology in Addressing Greenhouse Gas Concentrations, Washington DC, June 2001.

Invited participant, DOE Visions workshop, Baltimore, Md., June 2001.

Invited Lecturer, MBL Microbial Diversity course, Woods Hole, MA, July 2001.

Invited participant, NASA Extreme Environments workshop, July 2001.

Plenary speaker, International Society for Microbial Ecology Meeting, Amsterdam, August 2001.

Invited speaker, Annual meeting of the Japanese Society for Molecular Biology, Tokyo, Japan, Dec 2001

Invited Speaker, Inaugural address for the International Society for Extremopholes, Tokyo, Japan, Dec 2001

Invited Speaker, Western Photosynthesis Conference, Asilomar, Monterey, CA, Jan 2002

Invited speaker, Colloquium on Molecular Biosciences, Pacific Northwest Laboratory, DOE, Richland WA., January 2002.
Invited Spearker, Geobiology Seminars, California Institute of Technology, Pasadena, CA, January 2002.
Invited speaker, 9th DOE Genome Workshop, Oakland, CA, January 2002.
Invited speaker, Session on Geobiology, AAAS Annual Meeting, Boston, February 2002.
Invited lecture, Course in Oceanic Biology, Hopkins Marine Station, February 2002.
NRC Review Panel, NRC Postdoctoral Fellowships, February 2002.
Invited Speaker, Biology Dept., Stanford University, March 2002
Distinguished lecturer, Miami University, Oxford, Ohio April 2002.
Invited lecture, course in Marine Microbiology, UC Santa Cruz, April 2002.
Member of the Fachbeirat (Advisory Board) for the Max Planck Institute fur Marine Microbiologie. (Six year review of the Institute in Bremen, Germany) April 2002.
Division lecture, Annual meeting of the American Society of Microbiology, Salt Lake City Utah, May 2002.
Convener and speaker, Session on environmental population genomics, Annual meeting of the American Society of Microbiology, Salt Lake City Utah, May 2002.
Convener and speaker, Session on Microbial activities on a global scale, Annual meeting of the American Society of Microbiology, Salt Lake City Utah, May 200
Presidents Forum lecture, Annual meeting of the American Society of Microbiology, Salt Lake City Utah, May 2002.
Invited speaker, Meeting of the International Union of the Microbiological Sciences, Paris, FR, July 30, 2002
NSF Review Panel on Microbial Observatories, Septermber 2002.
Invited Seminar, Dept of Civil and Environ. Engineering, M.I.T, Boston, MA October 1-2, 2002.
Plenary address, 14th International Genome Sequencing and Analysis Conference, October 5, 2002 Boston, MA
Chair and Organizer, American Academy of Microbiology Colloquium on "The global genome question", Sarasota FL, October 10-12, 2002
Member of NRC Ocean Studies Board Committee on 'The Implementation of a Seafloor Observatory Network for Oceanographic Research', First meeting October 22-23, 2002.
Invited speaker, Harvard Medical School, October 25, 2002.

Invited speaker, Course on Advances In Genome Technology And Bioinformatics, Sponsored by the MBL and TIGR, October 26, 2002

Invited speaker, Biology Department, California State University Humboldt, Arcata CA, January 17, 2003.

Invited Speaker, Biology Dept. Harvard University, Boston, MA, February 27, 2003.

Invited speaker, DOE/JGI meeting on Frontiers in Genome Science, Santa Fe, New Mexico, March 30, 2003.

Keynote speaker, University of New Mexico, Biology Dept. Research Day, Albuquerque, N.M., April 4, 2003.

Invited speaker, American Museum of Natural History, April 11, 2003. N.Y., N.Y.

Invited speaker. UCSF Biochemistry Dept., San Francisco, CA, April 22, 2003.

Invited speaker, Annual meeting of the American Society of Microbiology, Washington DC, May 2003.

NSF Review Panel on Microbial Genome Sequencing, June 2003.

Keynote address, First International Workshop on Metagenomics: From Microbial Diversity to Function Darmstadt, Germany, June, 2003.

Invited Speaker, Mini symposium on "Early Chemistry and the Evolution of Metabolism", Geobiology summer course, Catalina, CA June 2003.

Invited speaker, **:** XIX International Congress of Genetics, Melbourne Australia, July 2003.

Invited participant, Joint Genome Institute Retreat, July 2003, Pacifica CA

Invited speaker, Gordon conference on Archaea, New Hampshire, August, 2003.

Plenary speaker, Marine Biotechnology Conference, September 2003, Chiba Japan

Keynote address speaker. Genome Canada and Environment Canada Environmental Genomics workshop, Toronto, CA Oct 2003.

Invited speaker. Microbiology Dept. Seminar, University of Illinois, Urbana, Oct, 2003.

Invited speaker, CEE Distinguished speaker series, MIT, Cambridge MA, October 2003.

Invited presentation, National Research Council Ocean Studies Board Meeting , November 2003.

Plenary lecture, 4th International Conference on Systems Biology, St. Louis MO., November 2003.

Invited speaker, Biology Dept UC Santa Cruz, December 2003.

Co-organized and hosted at MBARI a workshop in marine microbiology ("Unveiling the Ocean's hidden majority: a roadmap"), funded by the Sloan and Moore Foundations, November 19-21, 2003.

Completed whitepaper write-up from 2002 American Academy of Microbiology Colloquium on "The global genome question" with co-organizer, Dr. David Relman of Stanford.

Invited lecture, Integrative Microbiology Distinguished Lecturer's Series, UC San Diego, La Jolla, CA January 2004.

Invited lecture, Graduate student seminar series, Biology Department, Cornell University , Ithaca N.Y., February 2004

Panelist, NSF Microbial Genome Sequencing program, Arlington VA, March 2004

Keynote speaker, Canada Environmental Genomics Program, McMaster University, Toronto Canada, May 2004.

Mini-symposium speaker, MBL Microbial Ecology course, Woods Hole, MA July 2004.

Plenary talk, Annual NSF Meeting on Microbial Observatories, Big Sky, Montana, September 2004.

Keynote Address, Annual Microbial Genomes Meeting, Lake Arrowhead, CA September 2004.

Invited speaker, Canadian Institute for Advanced Research Evolutionary Biology Program, Hotel du Lac Carling, Quebec October 2004.

Invited speaker, Agouron Institute research planning meeting, Pasadena CA, November 2004.

Invited speaker, Northeastern University, Biology Dept. January, 2005.

Keynote speaker, Microbial Science Initiative Symposium, Harvard University, Boston, MA April 2005.

Honorary Stone Memorial Lecturer, Pennsylvania State University, Dept. Biochemistry and Molecular Biology, College Park, PA April 2005.

Keynote Speaker, MBL Microbial Diversity Course Symposium, Woods Hole, MA, June 2005

Session chair and speaker, Environmental genomics session, International Union of Microbiological Sciences, San Francisco, CA, July 2005.

DOE Life Sciences Committee of Visitors (COV) review, Washington, D.C., May 2005.

NIH Natural Products Roadmap proposal review panel, Washington DC, June 2005.

Keynote Speaker, MBL Microbial Diversity Course Symposium, Woods Hole, MA, June 2005.

Invited speaker and symposium organizer, Environmental genomics, International Union of Microbiological Sciences Meeting, San Francisco, CA, August 2005.

Plenary speaker, Ecogenomics conference, Kansas State University, November, 2005.

Guest Instructor, Austral summer course in Oceanography, Dichato, Chile January 2006

Invited Speaker, Biology Dept., Univ. Las Vegas, Nevada, January 2006.

Co-organizer and speaker, Keystone Symposium, Microbial Community Genomics in Animals and in the Environment, Lake Tahoe, CA, February 2006.

Invited speaker, Session on Microbial Oceanography, Annual meeting of AAAS, St Louis, MO, February 2006.

Invited speaker, NSF Directorate for Biological Sciences Distinguished Lecture, Arlington VA, March 2006.

Invited speaker, 1st annual JGI Users Conference, Walnut Creek, CA, March 2006.

Plenary Lecture, American Society of Microbiology Conference for Undergraduate Educators, Orlando FL, May 2006

Invited speaker, 2nd Annual Sino Singapore-MIT-Alliance Symposium on Computational and Systems Biology. Shanghai, China, May 2006.

Invited speaker, MBL course in Microbial Diversity, Woods Hole MA. July 5, 2006

Invited speaker, Gordon Conference on Marine Microbiology, Maine, July 2006.

Guest instructor, Agouron Course in Marine Microbiology, Honolulu. HI., August, 2006

Closing plenary lecture, Int. Society of Microbial Ecology meeting, Vienna Austria, Aug 2006.

Invited Speaker, Metagenomics 2006 Meeting, La Jolla, CA, October, 2006.

Invited speaker, Chemical Engineering Dept Seminar Series, Univ. Toronto, January 2007.

Invited speaker, Microbiology Dept., Ohio State University, February 2007.

Plenary talk, Future of Biology, Univ. of Illinois, Champaign, Urbana, February 2007.

Plenary speaker, NSF Annual Microbial Observatory Meeting, Washington D. C. March 2007

Invited Speaker, Origins of Life: adapting to the environment. Institute for Advanced Study, Princeton, N. J., April 2007.

Opening session speaker, Annual meeting of the American Society of Microbiology, Toronto Canada, May 2007

Invited speaker, American Society for Microbiolgy, Colloqium on "Biogeochemistry and evolving microbes – what/s elements got to do with it?", Toronto Canada, May 2007.

Instructor, Agouron Summer Course in Microbial Oceanography, July 2007, Honoloulu, HI

Invited speaker, Agouron Summer Course Symposium, Biodiversity, speciation, and the "-omics" of marine microorganisms, July 2007, Honolulu, HI

Opening session plenary, 3rd European Meeting in Prokaryote Genomics, October 2007 Gottingen, Germany

Invited speaker, Pace Science Symposium, October 2007 Univ. Co. Boulder, Boulder, CO

Invited speaker, 30 years of Archaea Symposium, Institute of Genomic Biology, Univ. Illinois, Nov. 2007 Champaign Urbana, IL

Invited speaker, Linne' Symposium, (celebrating the 300th birthday of Linneaus), Royal Swedish Academy of Science, Stockholm, Sweden, November 2007

Invited speaker, Dept of Molecular Biology and Medicine, Washington University, St. Louis, MO, December 2007.

Invited Lecturer, Austral Summer Course in Ecology and Diversity of Marine Microorganisms (ECODIMM), Dichato, Chile, Jan 15-19, 2008

Stanier Memorial Lecture, Dept. of Molecular and Cellular Biology, UC Berkeley, Berkeley, CA, Jan 31, 2008

Invited speaker, Dept of Systems Biology, Harvard Medical School, Brookline MA Feb 2008.

Vladimir Ivanovich Vernadsky Medalist lecture, Annual meeting of the European Geosciences Union, Vienna, Austria, April, 2008.

Proctor and Gamble Award lecture in Applied and Environmental Microbiology, Annual Meeting of the ASM, Boston, MA, June 2008.

Invited speaker, CMORE summer symposium on "The Future of Microbial Oceanography, June 2008, Honolulu, HI

Landsdowne Lecture, Univ. of Victoria, Victoria, British Columbia, March 2009

Invited speaker, Dept of Biochemistry and Genetics, Univ. of Victoria, Victoria, British Columbia, March 2009

Invited speaker, Dept of Molecular Genetics and Microbiology, Iowa State University, Ames Iowa, April 2009

Invited speaker, National Academy of Sciences, New Member Updates, "Microbial planet", April 30th, Washington D.C.
http://2009video.nasonline.org.s3.amazonaws.com/2009am-delong-edward.html

Invited lecturer, Hopwood Lecture, John Innes Center for Research, Norwich, England, May 2009.

Invited speaker, Exploring the Marine Microbial World: Players, Patterns, and Process", D.C. White Research and Mentoring Award Lecture, Annual Meeting of the American Society for Microbiology, Philadelphia, PA May 2009.
(http://davidcwhite.org/award_research_2009.html)

Invited speaker, "The Impact of Carl Woese on 21st Century Microbiology", Special Award Tribute for Abbott-ASM Lifetime Achievement Award, Annual Meeting of the American Society for Microbiology, Philadelphia, PA May 2009.

Invited speaker, "Microbes Without Borders" in a Special Interest Symposium entitled Genomics Enabled Biogeography of Planet Earth, Annual Meeting of the American Society for Microbiology, Philadelphia, PA May 2009.

Invited speaker, "Genomic Perspectives On Microbially Mediated Biogeochemical Cycles" in C•MORE-Agouron Summer Symposia series, Sea Change
New perspectives on microbially-driven elemental cycles, June 13 2009.

Invited speaker, "Microbial Community "Omics" In The Ocean – Beyond The "Parts List"", 3rd Congress of European Microbiologists, Gothenburg, Sweden, June 28 2009.

Plenary Speaker, 2nd Annual Society for Applied Microbiology Environmental Microbiology lecture, "Deciphering microbial community dynamics from genomes to biomes", Royal Society of Medicine, London, England October 12, 2009.
(**http://2009video.nasonline.org.s3.amazonaws.com/2009am-delong-edward.html**)

Invited speaker Agouron Institute Nitrogen Meeting, "Out of the blue: Planktonic *Crenarchaea* and the ocean's nitrogen cycle", Scottsdale, Arizona, October 16, 2009

Plenary speaker, UIUC Chancellors colloquium, "Illuminating the microbial world : the key to understanding the evolution and ecology of the living Earth system" University of Illinois, Champaign Urbana IL, Februrary 17th, 2010.

Invited speaker, Microbiology seminar series, "Global analysis of the microbial gene expression in the stratified ocean environment" University of Illinois, Champaign Urbana IL, Februrary 18th, 2010.

Invited speaker, Cox Memorial Graduate Student Seminar series, "Exploring marine microbial communities, genomes to biomes", University of Oklahoma, Norman, OK. March 2010.

Invited speaker, Stanford Medical School Dept. of Microbiology, "Exploring marine microbial communities, genomes to biomes", Stanford Univeristy, Palo Alto, CA, May 2010.

Invited speaker, Session on "Convergence of the microbial ecological sciences between the NIH and NSF", Annual meeting of the American Society for Microbiology, San Diego, CA, May 2010

Invited participant, "Implementing the New Biology: Decadal Challenges Linking Food, Energy and the Environment", Howard Hughes Medical Institute, Washington DC, June 3-4, 2010.

Plenary speaker, Gordon conference on Marine Microbiology, Tilton, New Hampshire,, July 4, 2010.

Invited speaker, Genome Standards consortium, Intelligent Systems in Molecular Biology conference, Boston, MA , July 9th, 2010.

Invited speaker, Microbial Diversity Institute Seminar series, Yale University, New Haven, CT, October 1, 2010.

Invited speaker, Bauer Center for Genomics Research, Harvard University, Cambridge MA, November 10th, 2010.

Invited speaker, Biology Dept. seminar series, University of Massachusetts, Boston, MA, November 12th, 2010.

Plenary speaker, National Council for Science and the Environment Annual meeting, Washington DC, January 20th, 2011.

Invited speaker, Earth and Planetary sciences seminar series, Harvard University, Cambridge, MA, February 7, 2011.

Invited speaker, Micobial Science Initiative "Chalk Talk", Harvard University, Cambridge, MA, April 8, 2011.

Invited speaker, MCDB seminar series, University of Colorado, Boulder, CO, April 14, 2011.

Instructor, CMORE Agouron Summer course, Univ. of Hawaii, Honolulu HI June 2011

Invited participant Kava Bowl Summit, Univ. of Hawaii, Honolulu HI, June 2011

Invited speaker, MIT High School Science Teachers conference, Boston MA, July 14th 2011

Invited speaker, Semester in Environmental Science, Distinguished Scientist Seminar Series, Marine Biological Laboratories, Woods Hole, MA, Sept 30, 2011

Invited speaker, Dept of Ecology and Evolutionary Biology Seminar series, Princeton Univ., Princeton, N. J., Dec 14, 2011

Invited speaker, Marine Science Dept., Rutgers University, New Brunswick, New Jersey, April 2012

Instructor, CMORE Agouron Summer course, Univ. of Hawaii, Honolulu HI June 2012

Invited speaker, CMORE Agouron Summer course Symposium, Univ. of Hawaii, Honolulu HI June 2012

Invited speaker, University of Hawaii SOEST Dean's Distinguished Lecturer, Univ. of Hawaii, Honolulu HI August 2012

Plenary speaker, Storer Distinguished Lecturer, Lecture 1, U.C. Davis, Davis, CA. October 3, 2012. http://webcast.ucdavis.edu/llnd/1d1a4746

Plenary speaker,, Storer Distinguished Lecturer, Lecture 2, U.C. Davis, Davis, CA. October 4, 2012 http://webcast.ucdavis.edu/llnd/1d1a4746

Co-organizer and participant, Global systems 2.0 Panel, Dalai Lama Centner for Ethics and Transformative Values @ MIT, Camrbridge, MA, October 15 2012
http://thecenter.mit.edu/media/videos/
http://thecenter.mit.edu/hhdl-mit-2012/speakers/
http://www.youtube.com/watch?v=bkguLWBWY2E

Opening Plenary Speaker, Israel Society for Microbiology meeting, Tel Aviv, Israel, Feb 2013

Invited participant, Designing Cyberinfrastructures for Marine Omics Enabled Research, National Science Foundation, Arlington VA, March 2013

Invited speaker, School of Pure & Applied Natural Sciences University of Kalmar, Kalmar Sweden, March 2013

Invited thesis opponent, School of Pure & Applied Natural Sciences University of Kalmar, Kalmar Sweden, March 2013

Invited speaker, Oxygen Minimum Zone Symposium, Santa Cruz Chile, March 2013

Invited speaker, Phyloseminar Series, May 13, 2013. "How Carl Woese transformed the field of microbial ecology" http://phyloseminar.org/recorded.html

Invited speaker, Session on "Putting omics to the test", Annual meeting of the American Society of Microbiology, Denver, CO, May 2013.

Instructor, CMORE Agouron Summer course, Univ. of Hawaii, Honolulu HI June 2013

Organizer, chair and participant, NSF Geosciences EarthCube End User workshop "Ocean Omics", Catalina Island, CA, August 2013

Invited panel member/speaker, Schmidt Ocean Institute Research Symposium meeting, November 2013, Honolulu HI

Invited speaker, Royal Swedish Academy of Science, Stockholm, Sweden, November 2013

Participant & member, Expert Advisory Committee Biosciences Strategic Plan, Lawrence Berkeley National Lab, Berkeley, CA, November 2013

Invited thesis opponent, University of Uppsala, Uppsala Sweden, November 2013

Invited speaker, Monsanto Fellows Symposium, St. Louis MO, January 2014.

Distinguished lecture, Microbiology Dept., Univ. of Wisconsin, Madison, WI, Feb 2014

Invited seminar speaker, Bigelow Marine Labs, Bar Harbor, Maine, April 2014.

Invited seminar speaker, University of Texas, Austin, Dept of Molecular BioSciences, Austin Texas, April 2014.

Invited speaker, 2014-2015 Biology/Botany/Marine Biology Seminar Series, Univeristy of Hawaii, October 3, 2014

Invited plenary, Joint Meeting of Japanese Environmental Microbiology-related Associations 2014. Hamamatsu, Japan, October 2014.

Invited award recipient and plenary talk, the Huntsman Medal Award for Excellence in Marine Science Lecture, Halifax, Nova Scotia, November 13, 2014.

Participant & member, Expert Advisory Committee Biosciences Strategic Plan, Lawrence Berkeley National Lab, Berkeley, CA, January 28 2015

Invited speaker, Biological Engineering Seminar Series, MIT, Cambridge MA, February 19, 2015.

Plenary speaker, Center for Circadian Biology annual symposium, UCSD, La Jolla, CA. February 26, 2015.

Plenary speaker, DOE Joint Genome Institute Annual Users Meeting, Walnut Creek, CA, March 2015. https://www.youtube.com/watch?v=t_b4rsz8Bbk

Plenary speaker, 2015 Annual Symposium on Marine Genomics: Progress and Future Perspective, Seoul, Korea June 23, 2015

Plenary speaker, Korean Society for Microbiology and Biotechnology , 42nd Annual Meeting & International Symposium, Gyeongju, Korea, June 25, 2015

Keynote speaker, Multiomics for Microbiomes conference, PNNL, KennewickWA. September 14, 2015

Participant, White House OSTP Microbiome Innovation Forum, Washington DC, Sept 25, 2015

Invited speaker,, University of Auckland Biology Dept. seminar series, Auckland, New Zealand Feb 17, 2016

Invited speaker, New Zealand Microbial Ecology Consortium, Auckland, New Zealand Feb 18, 2016

Invited speaker, "Catch the Next Wave Conference" Oceanology Meeting, London, England, March 14, 2016

Invited speaker, Biology Dept., University of Texas, Arlington, April 28, 2016.

Invited lecturer, Winter Course in Mathematical and Computational Biology, University of Queensland, Brisbane, Australia, July 4-8, 2016.

Organizer and invited speaker, Session on "Oceans of discovery, seas of change", International Society of Microbial Ecology meeting, Montreal Canada. August, 2016

Invited speaker, Lawrence Berkeley lab seminar series, August 30, 2016. Berkeley CA

Organizer and speaker, NAS Chemisry of Microbiomes: Marine seminar series, Natioanl Academy of Science, October 17, 2016, Washington D.C.

Invited plenary, 2017 UC Berkeley Graduate Student Symposium, Berkeley, CA, April 2017

Invited Speaker, DOE Joint Genome Institute, "1st Workshop for a National Microbiome Data Center" Walnut Creek, CA, February, 2017

Speaker, Workshop on Modeling Aloha via Hierarchical Analysis of the Light-driven Ocean, Georgia Tech., Atlanta Georgia, May 2017

Plenary speaker, ASM Microbe Meeting, Session on Micrbiology by Day and Night, New Orleans, LA, June 2017

Organizer, Co-Chair and Speaker, ASM Microbe Meeting Townhall on "Envisioning a National Microbiome Data Collaborative" New Orleans, LA, June 2017

TEACHING

UCSB

BIO4C	Introductory Biology	Spring 1993, 1994, 1995, 1996, 1997
BIO142	Marine Microbiology,	Winter 1994, 1995, 1996
BIO142L	Marine Microbiol. lab	Winter 1995, 1996
EEMB129	Introductory Genetics	Winter 1997

Taught 1 -2 UCSB graduate seminars per year, 1993-1997

M.I.T.

CEE 1.82	Microbial Genomes	Spring 2005, 2007, 2010
CEE.1.018J	Ecology of Earth System	Fall 2005, 2006, 2007, 2008, 2009, 2011, 2012
BE 20.106	Microbial systems	Fall 2005, 2006, 2007, 2008, 2013
BE 20.45	Microbial pathogenesis	Fall 2009, 2011, 2012

University of Hawaii, Manoa

OCN750	Con. App. Ocn. Microbiome	Spring 2016
MICR475	Bacterial Genetics	Spring 2017
MCB475	Bacterial Genetics	Spring 2017
MICR475L	Bacterial Genetics Lab	Spring 2017
MCB475L	Bacterial Genetics Lab	Spring 2017

UH Department Committees

2016-2017	OCN Dept. Personnel Committee
2016-2017	OCN Teaching Evaluation Committee

PhD Student	***Graduated***	***Advisor role*:**
Chris Scholin	S92	WHOI, member
Laura Gordesky	S93	UCSB, member
Carol Kosman	S96	UCSB, co-chair
Yong Hi Hong	F93	UCSB, member
Rafael Jovine	F94	UCSB, member
Michael Franklin	S97	UCSB, member
John Ashen	W98	UCSC, member
Timothy Hovanec	F98	UCSB, member (C.E.O., Dr. Tim's Aquatics)
Debra Bemis	F98	UCSB, member
Terrence J. Evans.	F98	UCSB, member
Christina Preston	W98	UCSB, chair (Res. Technician, MBARI)
Allison Murray	W98	UCSB, chair (Assoc. Scient., Desert Research Inst)
Paul Fowler	W99	UCSB, chair
Victoria Orphan	W01	UCSB, chair (Assist. Prof., Cal. Tech)
Laura Fandino	S02	UCSD, SIO, member
Virginia Rich	S08	MIT-WHOI main Advisor (Assist. Prof., Univ AZ).
Yanmei Shi	W10	MIT, CEE main Advisor (Boston Consult Group)
Jennifer Braff	F07 (masters)	MIT, CEE main Advisor (Marical, ME)
Justin Buck	W12	MIT, BE main Advisor (CSO, Cambrian Innovation)
LauraAnne Ventouras	W12	MIT, BE main Advisor (Consulting)
Sara Lincoln	S13	MIT-EAPS co-Advisor

Whitney Krey	S08 (masters)	MIT-WHOI co-Advisor (Scientist, Novartis)
Jamie Becker	S13	MIT-WHOI co-Advisor
Maureen Coleman	S09	MIT, CEE member (Assistant Prof. Univ. Chicago)
Luke Thompson	S10	MIT, Biology member
Adam Rivers	S09	MIT-WHOI member
Dana Hunt	W07	MIT, CEE member (Assistant Prof. Duke)
Sarah Pacocha	W09	MIT-WHOI member
Elizabeth Orchard	S10	MIT-WHOI member
Annette Hynes	W09	MIT-WHOI member
Mike Brosnahan	W10	MIT-WHOI member
Laura Hmelo	S10	MIT-WHOI member
Sean Clarke	S13	MIT, BE member
Lawrence David	S10	MIT, CSBi member (Assistant Prof. Duke)
Robbie Barbero	F11	MIT, BE member
Dan Rogers	S10	MIT-WHOI member
Barry Canton	S08	MIT, BE member
Jason Kelly	S08	MIT, BE member
Jessica Weidemeir	current	MIT, Microbio Grad, member
Alison Takamura	current	MIT, Microbio Grad, member
Mike Valliere	S16	MIT CEE, Main advisor
Oscar Sosa	S15	MIT-WHOI, main advisor
Jessica Bryant	S17	MIT CEE, Main advisor
Ha Na Kim	S13 (masters)	MIT CEE, Main advisor
Nathan Klapoetke	S13	MIT BE, member
Mark Smith	S13	MIT Microbio grad, member
Jeff Wagner	S14	MIT Microbio grad, member
Deepak Dugar	F11	MIT Chemical Eng. member
Felix Moser	S13	MIT BE, member
Adam Freedman	S14	MIT, Microbio Grad, member
Katie Pitz	S16	MIT-WHOI member
Nate Cerak	S16	MIT CSBi/BE member
Carla Gimpel	current	UH, Marine Biology, Main advisor
Chris Schvarz	current	UH, Dept. Oceanog, member
Aka Beebe	current	UH, Dept. Oceanog, member
Alice Vislova	current	UH, Dept. Oceanog. Main advisor
Elaine Luo	current	UH, Marine Biology, Main advisor

Postdoctoral Scholars Supervised:

Dr. Thomas J. DiChristina	1990-1993 (Prof., Georgia Tech.)
Dr. Ramon Massana	1995-1997 (Res. Scientist, Institut de Ciències Mar)
Dr. Christa Schleper	1995-1997 (Prof. Univ. Vienna)
Dr. Oded Beja	1998-2001 (Assoc. Prof. Technion)
Dr. Marcelino Suzuki	1997-2000 (Assist Prof. Univ Maryland)
Dr. Grieg Steward	1998-2000 (Assoc. Prof., Univ Hawaii)
Dr. Jose' de la Torre	2001-2003 (Assist. Prof, San Francisco State)
Dr. Peter Girguis	2000-2004 (Assist. Prof., Harvard)
Dr. .Niels-Ulrik Frigaard	2004-2005 (Assoc, Prof., Univ. Copenhagen)

Dr. Steven Hallam	2001-2005 (Assist. Prof, Univ British Columbia)
Dr. Kostas Konstantinidis	2005-2007 (Assist. Prof., Georgia Tech.)
Dr. Tracy Mincer	2004-2008 (Assist. Scientist, Woods Hole Oceanog.)
Dr. Vinh Pham	2005-2009 (Research Scientist, GloriOil)
Dr. Jay McCarren	2005-2009 (Research Scientist, Synthetic Genomics)
Dr. Gene Tyson	2006-2008 (Assistant Prof., Univ Queensland, AU)
Dr. Julia Maresca	2007-2010 (Assistant Prof., Univ Deleware)
Dr. Frank Stewart	2008-2010 (Assistant Prof., Georgia Tech.)
Dr. Elizabeth Ottesen	2008-2012 (Assistant Prof., Univ. Georgia)
Dr. Robbie Young	2009-present (Res. Scientist, , UK)
Dr. Adrian Sharma	2009-2013
Dr. Thomas Danhorn	2010-2012 (Postdoc, Univ Colorado)
Dr. Hiro Kimura	2008-2010 (Professor, Shizuoka University, Japan)
Dr. Scott Gifford	2011-2015 (Asst. Prof, U So. Carolina, Chapel Hill)
Susumu Yoshizawa	2013-2015 (Asst. Prof., University Tokyo, Japan)
Kristina Fontanez	2012-2015 (Res. Scientist, Quiagen, Boston, MA)
Erik Pelve	2013-2015 (Asst. Prof. University Uppsala)
Frank Aylward	2013-2017 (Asst. Prof., Virginia Tech)
Byron Sherwood-Pedler	2014-2017 (Asst. Research, Univ. Pennsylvania)
Daniel Mende	2014-present
Daniel Olson	2016-present
Bethanie Edwards	2016-present
Dominque Boeuf	2016-present
Fuyan Li	2017-present

Summer/Winter course participation (partial list)

Summer course in Geobiology, Catalina Island, July 2003
Marine Biological Laboratory Course in Genomics, October 2003
Marine Biological Laboratory Summer Course in Microbial Diversity, July 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010
Austral Summer Course in Microbial Oceanography, Dichato, Chile January 2006, 2008
Agouron C-MORE Summer Course in Microbial Oceanography, 2006-2014
Winter Course in in Mathematical and Computational Biology, University of Queensland, Brisbane Australia, July 2016