

CURRICULUM VITAE

Edward Francis DeLong
Massachusetts Institute of Technology
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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:

2004- 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

Professional Affiliations:

American Academy of Microbiology; American Society 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 molec 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 Initiative, 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 Colloquium 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 AAAS
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
Director of Research, NSF STC Center for Microbial Oceanography: Research & Education. 2006-present
Member, MIT steering committee, Dalai Lama Center for Ethics and Transformative Values 2009-present

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

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 Fe³⁺, *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
88. **DeLong**, E. F. 2002. Its all in the packaging. *Nature* 419, 676 – 677.
89. Zeidner, G. C. M. Preston, E. F. **DeLong**, R. Massana, A. F. Post., D. J. Scanlan, O. Béjà. 2003. Molecular diversity among marine picophytoplankton as revealed by *psbA* analyses. *Environ. Microbiol.* 5: 212–216
90. Orphan, V. J., J. Boles, S. K. Goffredi, and E. F. **DeLong**. 2002. Geochemical influence on microbial processes in high temperature oil reservoirs. *Geomicrobiol. J.* 20:1-17.
91. **DeLong**, E. F. 2003. A plentitude of microorganisms. *Natural History Magazine*, 112:40-46.
92. Sabehi, G., Ramon M., **DeLong** E. F. and O. Béjà. 2003. New Proteorhodopsin Variants from the Mediterranean and Red Seas, *Environ. Microbiol.* 5: 842–849

93. Girguis, P. R., V. Orphan And E. F. DeLong. 2003. Enrichment Of Anaerobic Methane Oxidizing Archaeal/Bacterial Consortia In Deep-Sea Marine Sediments. *Appl. Environ. Microbiol.* 69: 5472–5482
94. Hallam S. J., P. R. Girguis, C. M. Preston, P. M. Richardson, and **E. F. DeLong**. 2003. Identification of Methyl Coenzyme M Reductase A (*mcrA*) genes in Methane Oxidizing Archaea. *Appl. Environ. Microbiol.* 69: 5483–5491
95. de la Torre, J. R, Christianson, L.M., B  j  , O., Heidelberg, J., Karl D.M., and **E. F. DeLong**. 2003. Proteorhodopsin genes are distributed among divergent marine bacterial taxa.. *Proc. Natl. Acad. Sci. U.S.A.* 100:12830-12835.
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108. Girguis P. R., A. Cozen and **E. F. DeLong**. 2005. Growth and population dynamics of anaerobic methane-oxidizing archaea and sulfate -reducing bacteria in a continuous flow bioreactor. *Appl. Environ. Microbiol.* 71:3725-3733.
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124. **E. F. DeLong**. 2007. Life on the thermodynamic edge. *Science* 317:327-328.
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- 144. DeLong E.F.** and O. Be'ja' O. 2010. The light-driven proton pump proteorhodopsin enhances bacterial survival during tough times. *PLoS Biol* 8(4): e1000359. doi:10.1371/journal.pbio.1000359.
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- 147.** Rich, V. Pham, J. Eppley, Y. Shi, and **E.F. DeLong**. 2011. Time-series analyses of Monterey Bay coastal microbial picoplankton using a “genome proxy” microarray. *Environ. Microbiol.* 13:116-134
- 148.** McCarren, J., Becker, J., Repeta, D., Shi, Y., C.R. Young, Malmstrom, R. Chisholm P., and **E. F. DeLong**. 2010. Microbial community transcriptomes reveal microbes and metabolic pathways associated with dissolved organic matter turnover in the sea, *PNAS* 107:16420-16427.
- 149.** Meeting Report: Metagenomics, Metadata and MetaAnalysis (M3) at ISMB 2010. Field D, Sansone S, **Delong EF**, Sterk P, Friedberg I, Kottmann R, Hirschman L, Garrity G, Cochrane G, Wooley J, Meyer F, Hunter S, White O. *Stand. Genomic Sci.* 2010;3:232-1234.
- 150.** Meeting Report: BioSharing at ISMB 2010. Field D, Sansone S, **Delong EF**, Sterk P, Friedberg I, Gaudet P, Lewis S, Kottmann R, Hirschman L, Garrity G, Cochrane G, Wooley J, Meyer F, Hunter S, White O, Bramlett B, Gregurick S, Lapp H, Orchard S, Rocca-Serra P, Ruttenberg A, Shah N, Taylor C, Thessen A. *Stand. Genomic Sci.* 2010 Dec 4::254-258.
- 151.** Canfield DE, Stewart FJ, Thamdrup B, De Brabandere L, Dalsgaard T, **DeLong EF**, Revsbech NP, Ulloa O. 2010. A cryptic sulfur cycle in oxygen-minimum-zone waters off the Chilean coast. *Science*. 330: 1375-1378.
- 152.** Shi, Y., Tyson, G. W, Eppley, J. and **E. F. DeLong**. 2011. Integrated metatranscriptomic and metagenomic analyses of stratified microbial assemblages in the open ocean. *ISME J.* 5:999-1013.
- 153.** F. J. Stewart, O. Ulloa and **E. F. DeLong**. 2011. Microbial metatranscriptomics in a permanent marine oxygen minimum zone. *Environ. Microbiol.* doi: 10.1111/j.1462-2920.2010.02400.x
- 154.** Kimura, H., Martinez, A. and **E. F. DeLong**. 2011. Light activated transcriptional responses associated with proteorhodopsin enhanced growth in a marine flavobacterium. *ISME J.*, 5:1641-1651.
- 155.** Ottesen, E., Marin III, R., Preston, C., Young, C. R., Ryan, J. P., Scholin C. A., and **E. F. DeLong**. 2011. Metatranscriptomic analysis of autonomously collected and preserved marine bacterioplankton *ISME J.*, June 30. doi: 10.1038/ismej.2011.70.
- 156.** Stewart, F., Sharma, A. Bryant, J., Eppley, J.M., and **E. F. DeLong**. 2011 Community transcriptomics reveals universal patterns of protein sequence conservation in natural microbial communities, *Genome Biology*, 12:R26 doi:10.1186/gb-2011-12-3-r26
- 157.** Shi Y., McCarren J. and **E. F. DeLong**. 2011. Transcriptional responses of surface water marine microbial assemblages to deep-sea water amendment. *Environ. Microbiol. Environ Microbiol.* Oct 9. doi: 10.1111/j.1462-2920.2011.02598.x

158. Martinez, A., Osbourne, M., **DeLong, E.F.**, and S.W. Chisholm. 2011. Phosphite utilization by the marine picocyanobacterium *Prochlorococcus marinus* MIT9301, Environ Microbiol. Oct 18. doi: 10.1111/j.
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160. Stewart FJ, Dmytrenko O, DeLong EF, Cavanaugh CM. 2011. Metatranscriptomic analysis of sulfur oxidation genes in the endosymbiont of solemya velum. Front Microbiol. 2:134.
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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, Symposium 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 Institute 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 Berkely 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, Argentine 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, August 1999.

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 Theoretical 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 Extremophiles, 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 Speaker, 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 für 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, September 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, Agouyon 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 Microbiology, Colloquium 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, Honolulu, 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, February 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, February 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 University, 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 2010

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

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
BE 20.106	Microbial systems	FALL 2005, 2006, 2007, 2008
BE 20.45	Microbial pathogenesis	FALL 2009, 2011

PhD Student Supervised:

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.S.O., Aquaria)
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
Yanmei Shi	W10	MIT, CEE main Advisor
Jennifer Braff	F07 (masters)	MIT, CEE main Advisor
Justin Buck	current	MIT, BE main Advisor
LauraAnne Ventouras	current	MIT, BE main Advisor
Sara Lincoln	current	MIT-EAPS co-Advisor
Whitney Krey	S08 (masters)	MIT-WHOI co-Advisor
Jamie Becker	current	MIT-WHOI co-Advisor
Maureen Coleman	S09	MIT, CEE member
Luke Thompson	S10	MIT, Biology member
Adam Rivers	S09	MIT-WHOI member
Dana Hunt	W07	MIT, CEE member
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	current	MIT, BE member
Lawrence David	S10	MIT, BE member
Robbie Barbero	current	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
Oscar Sosa	current	MIT-WHOI, main advisor
Ha Na Kim	current	MIT CEE, Main advisor
Nathan Klapoetke	current	MIT BE, member
Mark Smith	current	MIT Microbio grad
Deepak Dugar	current	MIT Chemical Eng.

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 Delaware)
Dr. Frank Stewart	2008-2010 (Assistant Prof., Georgia Tech.)
Dr. Elizabeth Ottesen	2008-present
Dr. Robbie Young	2009-present
Dr. Adrian Sharma	2009-present
Dr. Thomas Danhorn	2010-present

Summer 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 Summer Course in Microbial Oceanography, 2006, 2007, 2008, 2009, 2010