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FORMAL EDUCATION

B.S., Biology, Rensselaer Polytechnic Institute, 1968.

Ph.D., Marine Sciences, Rosenstiel School of Marine & Atmospheric Sciences, University of Miami, 1976.

Dissertation: Studies on the Methane Cycle in Tropical Marine Sediments. FGW Smith Prize for outstanding dissertation, RSMAS, 1976. University of Miami Fellowship, 1972 - 1974.

PROFESSIONAL EXPERIENCE

1977 to Present: Project Chief (grade: Senior Research Scientist, ST-00, March, 1999). "Microbial Biogeochemistry," United States Geological Survey, Water Resources Division, Menlo Park, CA.

1976 to 1977: National Research Council Postdoctoral Associate, NASA Ames Research Center, Moffett Field, CA (mentor: Dr. M.P. Silverman; deceased)

1974 to 1976: Graduate Research Assistant, RSMAS, University of Miami (mentor: Prof. Barrie F. Taylor).

1972 to 1974: Graduate Student, RSMAS, University of Miami.

1969 to 1971: Active Duty, U.S. Navy; Commissioned 11/1969; Graduated Naval School of Diving and Salvage, Wash. D.C., 4/1970; Active Duty Station: Diving and Salvage Officer, Executive Officer, USS Utina (ATF - 163). Released from active duty, 9/1971. Naval Reserve (drilling), Miami, Mobile Inshore Undersea Warfare Unit 1108, First Lieutenant and Diving Officer, 1974 - 1976; honorable discharge, 8/1982, final rank = Lieutenant.

1968 to 1969: Graduate Student, RSMAS, University of Miami (studies interrupted by military service).

PROFESSIONAL SOCIETIES

American Society for Microbiology
American Geophysical Union
American Association for the Advancement of Science
International Committee of the International Symposia for Environmental Biogeochemistry

MISCELLANEOUS SERVICE AND HONORS

Distinguished Service Award, US Dept. Interior, October, 2000.

Fachbeirat (Scientific Advisory Board), Max Planck Institute for Terrestrial Microbiology, Marburg, Germany (Nov., 2000 – December, 2011)

Fellow, American Academy of Microbiology (Elected, 1998).

Fellow, American Geophysical Union (Elected, 2004).

President, International Symposia for Environmental Biogeochemistry (ISEB Inc.): 2001 – 2007.

Fellow of the ISEB, elected November, 2007.

ISEB: International Committee for Environmental Biogeochemistry (elected, October, 1983), Elected to position of vice-chairman, September, 1987. Chairman of Executive Board, 1991 - 2001.

ISEB 10 National Chairman, San Francisco, CA 19 - 23 August, 1991; Theme: Global Change and the Biogeochemistry of Radiative Trace Gases.

Chief Editor, "Biogeochemistry of Global Change: Radiatively-Active Trace Gases" by Chapman & Hall, NY, publication date 1993, invited and selected papers from the ISEB 10 Symposium (45 chapters).

Adjunct Professor, Rosenstiel School of Marine & Atmospheric Sciences, Dept. Marine & Atmospheric Chemistry, Univ. Miami, FL

Guest Editor, Geomicrobiology Journal, special issue on dissimilatory reduction of toxic elements (publication date: winter 2001)

Chairman and organizer, symposium on "Atmospheric methane and the biosphere/geosphere", ACS Geochemistry Div., Denver Colorado., April, 1987.

Editorial Board, Applied & Environmental Microbiology, 1980 to 1986; Re-appointed 2004 – 2006; 2007 - 2009.

Associate Editor, Geomicrobiology Journal (1988 – to present).

Editorial Board, Environmental Microbiology (appointed, January, 2007).

Research Advisor, Ecology discipline, USGS, Nat'l Research Program. Jan. 1992 to Jan. 1995.

Assistant Research Advisor, Ecology discipline, USGS National Research Program, Jan. 1989 - Dec. 1991.

Adjunct professor of Biology, San Francisco State University, 1980 to 1990.

Dept. Interior, Meritorious Service Award, September, 1992.
Dept. Interior, Superior Service Award, U.S. Geological Survey, October, 1988.
USGS/DOI Outstanding Achievement Award, March 1996
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PATENTS:

Selenate removal from wastewaters. 1991, U.S. Patent No. 5,009,786.

Selenate removal from wastewaters. 1993. U.S. Patent No. 5,271,831.

Enhancement of bacterial oxidation of methyl bromide during agricultural fumigations. 2000. US Patent No. 6,013,254.

A bioreactor for the oxidation of the fumigant methyl bromide. 2005. US Patent No. 6916446.

Microbiologically generated nanocomposites using hybrid Te nanorods and polymers (in process of filing with colleagues at Univ. Houston & Trinity College)

REVIEWED PUBLICATIONS

1. **Oremland, R.S.** 1975. Methane production in shallow water, tropical marine sediments. Appl. Microbiol. 30: 602-608.

2. **Oremland, R.S., and B.F. Taylor.** 1975. Inhibition of methanogenesis in marine sediments by acetylene and ethylene: Validity of the acetylene reduction assay for anaerobic microcosms. Appl. Microbiol. 30: 707-709.

3. **Oremland, R.S. and B.F. Taylor.** 1977. Diurnal fluctuations of O_2, N_2, and CH_4 in the rhizosphere of *Thalassia testudinum*. Limnol. Oceanog. 22: 566-569.

4. **Oremland, R.S. and B.F. Taylor.** 1978. Sulfate-reduction and methanogenesis in marine sediments. Geochim. Cosmochim. Acta. 42: 209-214.

5. **Capone, D.G., R.S. Oremland, and B.F. Taylor.** 1978. Significance of N_2 fixation to the production of *Thalassia testudinum*. p. 71-86. *In* H.B. Stewart (editor), CICAR II Symposium, Caracas, Venezuela, FAO Fisheries Rpt. #200.

6. **Oremland, R.S.** 1979. Methanogenic activity in plankton samples and fish intestines: A mechanism for in situ methanogenesis in ocean surface waters. Limnol. Oceanog. 24: 1136-1141.

7. **Oremland, R.S. and M.P. Silverman.** 1979. Measurement of microbial sulfate-reduction by an automated electrical impedance technique. Geomicrobiol. J. 1: 355-372.

8. **Capone, D.G., P.A. Penhale, R.S. Oremland, and B.F. Taylor.** 1979. Relationship between productivity and $N_2(C_2H_2)$ fixation in a *Thalassia testudinum* community. Limnol. Oceanog. 24: 117-125.

9. **Taylor, B.F., and R.S. Oremland.** 1979. Depletion of adenosine triphosphate in Desulfovibrio by oxyanions of Group VI elements. Current Microbiol. 3: 101-103.

10. **Culbertson, C.W., A.J.B. Zehnder, and R.S. Oremland.** 1981. Anaerobic oxidation of acetylene by estuarine sediments and enrichment cultures. Appl. Environ. Microbiol. 41: 396-403.

11. **Oremland, R.S.** 1981. Microbial formation of ethane in anoxic, estuarine sediments. Appl. Environ. Microbiol. 42: 122-129.

12. **Triska, F.J. and R.S. Oremland.** 1981. Denitrification associated with periphyton communities. Appl. Environ. Microbiol. 42: 745-748.

13. **Oremland, R.S., L. Marsh, and D.J. Des Marais.** 1982. Methanogenesis in Big Soda Lake, Nevada: An alkaline, moderately hypersaline desert lake. Appl. Environ. Microbiol. 43: 462-468.

14. **Oremland, R.S., L.M. Marsh, and S. Polcin.** 1982. Methane production and simultaneous sulfate-reduction in anoxic, salt marsh sediments. Nature 296: 143-145.

15. **Oremland, R.S., C.W. Culbertson, and B.R.T. Simoneit.** 1982. Methanogenic activity from Leg 64, Gulf of California. p. 759-762. *In* Initial Reports of the Deep

sea Drilling Project, v. LXIV, Nat'l Science Foundation, Washington, D.C. (JR Curray & DG Moore, eds.).

16. **Vogel, T.M., R.S. Oremland, and K.A. Kvenvolden.** 1982. Low temperature formation of hydrocarbon gases in San Francisco Bay sediment. Chem. Geology. 37: 289-298.

17. **Oremland, R.S., and S. Polcin.** 1982. Methanogenesis and sulfate-reduction: Competitive and noncompetitive substrates in estuarine sediments. Appl. Environ. Microbiol. 44: 1270-1276.

18. **Cloern, J.E. and R.S. Oremland.** 1983. Chemistry and microbiology of a sewage spill in South San Francisco Bay. Estuaries. 6: 399-406.

19. **Cloern, J.E., B.E. Cole, and R.S. Oremland.** 1983. Seasonal changes in the chemical and biological nature of a meromictic lake (Big Soda Lake, Nevada, USA). Hydrobiologia. 105: 195-206.

20. **Oremland, R.S.** 1983. Hydrogen metabolism by decomposing cyanobacterial aggregates in Big Soda Lake, Nevada. Appl. Environ. Microbiol. 45: 1519-1525.

21. **Smith, R.L. , and R.S. Oremland.** 1983. Anaerobic oxalate degradation: Widespread natural occurrence in aquatic sediments. Appl. Environ. Microbiol. 46: 106-113.

22. **Oremland, R.S.** 1983. Methane content of geothermal gases in association with seismic activity. Eos. 64: 410.

23. **Cloern, J.E., B.A. Cole, and R.S. Oremland.** 1983. Autotrophic processes in Big Soda Lake, Nevada. Limnol & Oceanog. 28: 1049-1061.

24. **Oremland, R.S. and D.J. Des Marais.** 1983. Distribution, abundance, and carbon isotopic composition of gaseous hydrocarbons in Big Soda Lake, Nevada: An alkaline, meromictic lake. Geochim. Cosmochim. Acta. 47: 2107-2114.

25. **Oremland, R.S., C. Umberger, C.W. Culbertson, and R.L. Smith.** 1984. Denitrification in San Francisco Bay intertidal sediments. Appl. Environ. Microbiol. 47: 1106-1112.

26. **Duff, J., F.J. Triska, and R.S. Oremland.** 1984. Denitrification associated with stream communities: Chamber estimates from undisturbed communities. J. Environmental Quality 13: 514-518.

27. **Smith, R.L., F.S. Strohmaier, and R.S. Oremland.** 1985. Isolation of anaerobic oxalate degrading bacteria from freshwater lake sediments. Arch. Microbiol. 14: 8-13.

28. **Oremland, R.S., R.L. Smith, and C.W. Culbertson.** 1985. Aspects of the biogeochemistry of Big Soda Lake, Nevada, p. 81-88. *In* Planetary Ecology (Caldwell, Brierley & Brierley, eds.), Van Nostrand Reinhold Co., NY.

29. **Miller, L.G., R.S. Oremland, and S. Paulsen.** 1986. Measurement of N_2O reductase activity in aquatic sediments. Appl. Environ. Microbiol. 51: 18-24.

30. **Whelan, J.K. R.S. Oremland, M. Tarafa, R.L. Smith, R. Howarth, and C. Lee.** 1986. Evidence for sulfate-reducing and methane producing microorganisms in sediments from sites 618, 619, and 622, Initial Reports of the Deep Sea Drilling Project. A. Buoma, J. Coleman, A. Meyer et al., editors, p. 767-775.

31. **Tarafa, M., J. Whelan, R.S. Oremland, and R.L. Smith.** 1986. Evidence for microbiological activity in Leg 95 (New Jersey transect) sediments. Initial Reports DSDP, C. Poag and A. Watts, editors, 635-640.

32. **Kiene, R., R.S. Oremland, A. Catena, L. Miller, and D.G. Capone.** 1986. Metabolism of reduced methylated sulfur compounds in anaerobic sediments and by a pure culture of an estuarine methanogen. Appl. Environ. Microbiol. 52: 1037-1045.

33. **Oremland, R.S., and J.P. Zehr.** 1986. Formation of methane and carbon dioxide from dimethylselenide in anoxic sediments and by a methanogenic bacterium. Appl. Environ. Microbiol. 52: 1031-1036.

34. **Zehr, J.P., and R.S. Oremland.** 1987. Reduction of selenate to selenide by sulfate-respiring bacteria: Experiments with cell suspensions and estuarine sediments. Appl. Environ. Microbiol. 53: 1365-1369.

35. **Zehr, J.P., R.W. Harvey, R.S. Oremland, J.E. Cloern, L. George and J.L. Lane.** 1987. Big Soda Lake (Nevada). 1. Pelagic bacterial heterotrophy and biomass. Limnol. & Oceanog. 32: 781-793.

36. **Smith, R.L. and R.S. Oremland.** 1987. Big Soda Lake (Nevada). 2. Pelagic sulfate reduction. Limnol. & Oceanog. 32: 794-803.

37. **Iversen, N., R.S. Oremland and M.J. Klug.** 1987. Big Soda Lake (Nevada). 3. Pelagic methanogenesis and anaerobic methane oxidation. Limnol. & Oceanog. 32: 804-814.

38. **Fisher, C.R., J.J. Childress, R.S. Oremland and R.R. Bidigare.** 1987. The importance of methane and thiosulfate in the metabolism of the bacterial symbionts of two deep-sea mussels. Marine Biology. 96: 59-71.

39. **Oremland, R.S., L. Miller, and M. Whiticar.** 1987. Sources and flux of natural gases from Mono Lake, California. Geochimica et Cosmochimica Acta. 51: 2915-2929.

40. **Oremland, R.S. and D.G. Capone.** 1988. Use of "specific inhibitors" in biogeochemistry and microbial ecology. Adv. Microbial Ecology 10, 285-383, K.C. Marshall (ed.), Plenum Publish. Co., NY.

41. **Oremland, R.S.** 1988. The biogeochemistry of methanogenic bacteria, p. 405-447. *In* The Biology of Anaerobic Microorganisms (A.J.B. Zehnder, ed.), J. Wiley & Sons, NY.

42. **Oremland, R.S., J.E. Cloern, Z. Sofer, R.L. Smith, C.W. Culbertson, J. Zehr, L. Miller, B. Cole, R.W. Harvey, N. Iversen, M.J. Klug, D.J. Des Marais, and G. Rau.** 1988. Microbial and biogeochemical processes in Big Soda Lake, Nevada, p. 59-75. *In* Lacustrine Oil Source Rocks, K. Kelts, A.J. Fleet (eds.). Geological Soc. London.

43. **Culbertson, C.W., F.E. Strohmaier, and R.S. Oremland.** 1988. Acetylene as a substrate in the development of primordial microbial communities. Origins of Life and Evolution of the Biosphere. 18: 397-407.

44. **Miller, L.G. and R.S. Oremland.** 1988. Methane efflux from the pelagic regions of four lakes. Global Biogeochemical Cycles. 2: 269-277.

45. **Oremland, R.S., M.J. Whiticar, F.E. Strohmaier, and R.P. Kiene.** 1988. Bacterial formation of ethane from ethylated reduced sulfur compounds in anoxic sediments. Geochimica et Cosmochimica Acta. 52: 1895-1904.

46. **Cicerone, R. and R.S. Oremland.** 1988. Biogeochemical aspects of atmospheric methane. Global Biogeochemical Cycles. 2: 299-328.

47. **Oremland, R.S. and G.M. King.** 1989. Methanogenesis in hypersaline environments, p. 180-189. *In* Microbial Mats: Physiological Ecology of Benthic Microbial Communities, Y. Cohen and E. Rosenberg (eds.), Amer. Soc. Microbiol., Washington, D.C.

48. **Oremland, R.S., R.P. Kiene, I. Mathrani, M. Whiticar and D. Boone.** 1989. Description of an estuarine methylotrophic methanogen which grows on dimethylsulfide. Appl Environ. Microbiol. 55: 994-1002.

49. **Oremland, R.S.** 1989. Present day activities of anaerobic bacteria and their relevance to future exobiological investigations. Adv. Space Res. 9: 127-136.

50. **Oremland, R.S. , J.T. Hollibaugh, A.S. Maest, T.S. Presser, L. Miller, and C. Culbertson.** 1989. Selenate reduction to elemental selenium by anaerobic bacteria

in sediments and culture: Biogeochemical significance of a novel, sulfate-independent respiration. Appl. Environ. Microbiol. 55: 2333-2343.

51. **Oremland, R.S.** 1990. Nitrogen fixation dynamics of two diazotrophic communities in Mono Lake, California. Appl. Environ. Microbiol. 56: 614-622.

52. **Oremland, R.S., N.A. Steinberg, A.S. Maest, L.G. Miller, and J.T. Hollibaugh.** 1990. Measurement of in situ rates of selenate removal by dissimilatory bacterial reduction in sediments. Env. Sci. Technol. 24: 1157-1164.

53. **Dubrovsky, N.M., J.M. Neil, R. Fujii, R.S. Oremland, and J.T. Hollibaugh.** 1990. Influence of redox potential on selenium distribution in ground water, Mendota, Western San Joaquin Valley, California. USGS Open-File Report 90-138, Sacramento, CA.

54. **Steinberg, N.A. and R.S. Oremland.** 1990. Dissimilatory selenate reduction potentials in a diversity of sediment types. Appl. Environ. Microbiol. 56: 3550-3557.

55. **Oremland, R.S., C.W. Culbertson, and M.R. Winfrey.** 1991. Methyl mercury decomposition in sediments and bacterial cultures: Involvement of methanogens and sulfate reducers in oxidative demethylation. Appl. Environ. Microbiol. 57: 130-137.

56. **Oremland, R.S., N.A. Steinberg, T.S. Presser, and L.G. Miller.** 1991. In situ bacterial selenate reduction in the agricultural drainage systems of western Nevada. Appl. Environ. Microbiol. 57: 615-617.

57. **Steinberg, N.A., J. Switzer Blum, L. Hochstein, and R.S. Oremland.** 1992. Nitrate is a preferred electron acceptor for growth of freshwater selenate-respiring bacteria. Appl. Environ. Microbiol. 58: 426-428.

58. **Oremland, R.S., and C.W. Culbertson.** 1992. Importance of methane oxidizing bacteria in the methane budget as revealed by the use of a specific inhibitor. Nature (London). 356: 421-423.

59. **Oremland, R.S. and C.W. Culbertson.** 1992. Evaluation of methyl fluoride and dimethylether as inhibitors of aerobic methane oxidation. Appl. Environ. Microbiol. 58: 2983-2992.

60. **Luoma, S.N., C. Johns, N.S. Fischer, N.A. Steinberg, R.S. Oremland, and J.R. Reinfelder. 1992.** Determination of selenium bioavailability to a benthic bivalve from particulate and solute pathways. Environ. Sci. Technol. 26: 485 - 491.

61. **Miller, L.G., M.D. Coutlakis, R.S. Oremland, and B.B. Ward.** 1993. Selective inhibition of ammonium oxidation and nitrification-linked N_2O

formation by methyl fluoride and dimethyl ether. Appl. Environ. Microbiol. 59: 2457 - 2464.

62. **Miller, L.G., R. Jellison, R.S. Oremland, and C.W. Culbertson.** 1993. Meromixis in Mono Lake. 3. Breakdown of stratification and biogeochemical response to overturn. Limnol. & Oceanog. 38: 1040 - 1051.

63. **Oremland, R.S., L.G. Miller, C.W. Culbertson, S. Robinson, R.L. Smith, D. R. Lovley, M.J. Whiticar, G.M. King, et. al.** 1993. Aspects of the biogeochemistry of methane in Mono Lake and the Mono Basin of California, USA. p. 704 - 744 *In* R.S. Oremland (ed.), The Biogeochemistry of Global Change: Radiative Trace Gases, Chapman & Hall, NY.

64. **Oremland, R.S., and L.G. Miller.** 1993. Biogeochemistry of natural gases in three alkaline, permanently stratified (meromictic) lakes. *In* Future of Energy Gases, USGS Professional Paper (D. Howell editor), p. 439 - 452.

65. **Oremland, R.S.** 1994. Biogeochemical transformations of selenium in anoxic environments. p. 389 - 419 *In* Selenium in the Environment, W.T. Frankenberger Jr. and S. Benson (eds.), Marcel Dekker, NY.

66. **Oremland, R.S., L.G. Miller, and F.E. Strohmaier.** 1994. Degradation of methylbromide in anaerobic sediments. Env. Sci. & Technol. 28: 514 - 520.

67. **Oremland, R.S., L.G. Miller, C.W. Culbertson, T.L. Connell, and L.L. Jahnke.** 1994. Degradation of methyl bromide by methanotrophic bacteria in cell suspensions and soils. Appl. Environm. Microbiol. 60: 3640-3646.

68. **Oremland, R.S. and D. R. Boone.** 1994. ***Methanolobus taylorii*** sp nov, a new methylotrophic, estuarine methanogen. Int. J. System. Bacteriol. 44: 573 - 575.

69. **Visscher, P.T. C.W. Culbertson, and R.S. Oremland.** 1994. Degradation of trifluoroacetate in oxic and anoxic sediments. Nature 369: 729 - 731.

70. **Oremland, R.S., J. Switzer Blum, C.W. Culbertson, P.T. Visscher, L.G. Miller, P. Dowdle, and F.E. Strohmaier.** 1994. Isolation, growth and metabolism of an obligately anaerobic, selenate-respiring bacterium, strain SES-3. Appl. Environ. Microbiol. 60: 3011 - 3019.

71. **Oremland, R.S., L.G. Miller, P. Dowdle, T. Connell, and T. Barkay.** 1995. Methylmercury oxidative degradation potentials in contaminated and pristine sediments of the Carson River, Nevada. Appl. Environ. Microbiol. 61: 2745 - 2753.

72. **Laverman, A.M., J. Switzer Blum, J.K. Schaeffer, E.J. Philips, D.R. Lovley, and R.S. Oremland.** 1995. Growth of strain SES-3 with arsenate and other diverse electron acceptors. Appl. Environ. Microbiol. 61: 3556 - 3561.

73. **Oremland, R.S.** 1996. Microbial degradation of atmospheric halocarbons. p. 85 - 102 in C. Murrell and D. Kelly (eds.), Microbiology of Atmospheric Trace Gases: Sources, Sinks, and Global Change Processes. NATO ASI series 1: Global Environmental Change, Springer-Verlag, Berlin.

74. **Visscher, P.T., J.R. Guidetti, C.W. Culbertson, and R.S. Oremland.** 1996**.** Dimethylsulfoniopropionate as a potential methanogenic substrate in Mono Lake sediments. P. 361 - 368 in R.P. Kiene, P.T. Visscher, M.D. Keller, and G.O. Kirst (eds), Biological and Environmental Chemistry of DMSP and Related Sulfonium Compounds. Plenum Press, N.Y.

75. **Oremland, R.S.**1996**.** Microbial cycling of methyl bromide. p. 310 - 317 in Microbial Growth on C_1 Compounds, M.E. Lidstrom and R.F. Tabita (ed), Kluwer Academic Publishers, Dordrecht, The Netherlands.

76. **Oremland, R.S., D. Lonnergan, C.W. Culbertson, and D.R. Lovley.** 1996. Microbial consumption of hydrochlorofluorocarbons ($CHCl_2F$ and $CHCl_2CF_3$) in soils and sediments. Appl. Environ. Microbiol. 62: 1818 - 1821.

77. **Dowdle, P.R., A.M. Laverman, and R.S. Oremland.** 1996. Bacterial dissimilatory reduction of arsenic (V) to arsenic (III) in anoxic sediments. Appl. Environ. Microbiol. 62: 1664 - 1669.

78. **Matheson, L.J., J.R. Guidetti, P.T. Visscher, J.K. Schaefer, and R.S. Oremland.** 1996. Summary of research results on bacterial degradation of trifluoroacetate (TFA), October, 1993 - October, 1995. USGS Open File Report 96-219.

79. **Stolz, J.F., T. Gugliuzza, J. Switzer Blum, R. Oremland, and F.M. Murillo.** 1997. Differential expression of cytochromes and reductases in *Geospirillum barnesii* strain SES3. Arch. Microbiol. 167: 1-5.

80. **Connell, T.L., S.B. Joye, L.G. Miller, and R.S. Oremland.** 1997. Bacterial oxidation of methyl bromide in Mono Lake, California. Env. Sci. Technol. 31: 1489 - 1495.

81. **Matheson, L.J., L. Jahnke, and R.S. Oremland.** 1997. Inhibition of methane oxidation in *Methylococcus capsulatus* with hydrochlorofluorocarbons and fluorinated methanes. Appl. Environ. Microbiol. 63: 2952 - 2956.

82. **Miller, L.G., T. Connell, J. Guidetti, and R.S. Oremland**. 1997**.** Bacterial oxidation of methyl bromide in agricultural soil. Appl. Environ. Microbiol. 63: 4346 – 4354.

83. **Goodwin, K.D., M.E. Lidstrom, and R.S. Oremland.** 1997**.**Degradation of brominated methanes by marine bacteria. Env. Sci. Technol. 31: 3188 – 3192.

84. **Marvin DiPasquale, M., A. Oren, Y. Cohen, and R.S. Oremland.** 1998**.** Radiotracer studies of bacterial methanogenesis in sediments from the Dead Sea and Solar Lake (Sinai).In A. Oren (ed.) Microbiology and Biogeochemistry of Hypersaline Environments. CRC Press, Boca Raton, FL. P. 135 – 149.

85. **Connell Hancock, T.L., A.M. Costello, M.E. Lidstrom, and R.S. Oremland.** 1998. Strain IMB-1: a novel bacterium for the removal of methyl bromide in fumigated agricultural soils. Appl. Environ. Microbiol. 64: 2899 – 2905.

86. **Dowdle, P.R., and R.S. Oremland.** 1998. Microbial oxidation of elemental selenium in soils and bacterial cultures. Environ. Sci. Technol. 32: 3749 – 3755.

87. **Marvin DiPasquale,M., D. and R.S. Oremland**. 1998. Bacterial methyl mercury degradation in the Florida Everglades peat sediment. Environ. Sci. Technol. 32: 2556 – 2563.

88. **Miller, L.G., C. Sasson, and R.S. Oremland.** 1998. Difluoromethane: a new and improved inhibitor of methanotrophy. Appl. Environ. Microbiol. 64: 4357 – 4362.

89. **Goodwin, K., J.K. Schaefer, and R.S. Oremland.** 1998. Bacterial oxidation of dibromomethane, and methyl bromide in natural waters and enrichment cultures. Appl. Environ. Microbiol. 64: 4629 – 4636.

90. **Switzer Blum, J., A. Burns Bindi, J. Buzzelli, J.F. Stolz, and R.S. Oremland.** 1998. *Bacillus arsenicoselenatis* sp. nov., and *Bacillus selenitireducens* sp. nov. : two haloalkaliphiles from Mono Lake, California which respire oxyanions of selenium and arsenic. Arch. Microbiol. 171: 19 – 30.

91. **Joye, S.B., T.L. Connell, L.G. Miller, R. Jellison, and R.S. Oremland. 1999.** Oxidation of ammonia and methane in an alkaline, saline lake. Limnol. Oceanogr. 44: 178 - 188.

92. **Stolz, J.F., D.J. Ellis, J. Switzer Blum, D. Ahmann, R.S. Oremland, and D.R. Lovley**. 1999. *Sulfurospirillum barnesii* sp. nov., *Sulfurospirillum arsenophilus* sp. nov., and the *Sulfurospirillum* clade in the Epsilon Proteobacteria. Int. J. Systematic Bacteriol. 49: 1177 - 1180.

93. **Stolz, J.F., and R.S. Oremland. 1999.** Bacterial respiration of selenium and arsenic. FEMS Microbiology Reviews, 23: 615 - 627.

94. **Oremland, R.S., J.S. Blum, A. Burns Bindi, P.R. Dowdle, M. Herbel, and J.F. Stolz. 1999.** Simultaneous reduction of nitrate and selenate by cell suspensions of Se-respiring bacteria. Appl. Environ. Microbiol. 65: 4385 - 4392.

95. **Schaefer, J.K., and R.S. Oremland. 1999.** Oxidation of methyl halides by the facultative methylotroph, strain IMB-1. Appl. Environ. Microbiol. 65: 5035 - 5041.

96. **Oremland, R.S. 2000.** Selenium. p. 238 – 247 in J. Lederberg (ed.), Encylopedia of Microbiology, vol. 4, Second Edition, Academic Press, N.Y.

97. **Oremland, R.S., and J.F. Stolz. 2000.** Dissimilatory reduction of selenate and arsenate in nature. p. 199 – 224 In D.R. Lovley (ed) Environmental Metal-Microbe Interaction, Amer. Soc. Microbiology Press, Washington, D.C.

98. **Herbel, M.J., T.M. Johnson, R.S. Oremland, and T.D. Bullen. 2000.** Fractionation of selenium isotopes during bacterial respiratory reduction of selenium oxyanions. Geochim. Cosmochim. Acta 64: 3701 - 3709.

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139. **Hoeft, S.E., J. Switzer Blum, J.F. Stolz, F. R. Tabita, B. Witte, G.M. King, J.M. Santini, and R.S. Oremland. 2007.** *Alkalilimnicola ehlichii*, sp. nov., a novel, arsenite-oxidizng haloalklapihilic γ-Proteobacterium capable of chemoautotrophioc or heterotrophic growth with nitrate or oxygen as the electron acceptor. Int. J. Syst. Evol. Microbiol. 57: 504 - 512.

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141. **Schäfer, H. L.G. Miller, R.S. Oremland, and J.C. Murrell. 2007**. Bacterial cycling of methyl halides. Adv. Applied Microbiol. 61: 308 - 346.

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150. **Pearce, C.I., R.A.D. Pattrick, N. Law, J.M. Charnock, V.S. Coker,W. Fellowes, R.S. Oremland and J.R. Lloyd**. 2009. Investigating different mechanisms for biogenic selenite transformations: *Geobacter sulfurreducens. Shewanella oneidensis* and *Veillonella atypica*. Environ. Technol. (in press).

151. **Baesman, S.M., J.F. Stolz, T.R. Kulp, and R.S. Oremland.** 2009**.** Enrichment and isolation of *Bacillus beveridgei* sp. nov., a facultative anaerobic haloalkaliphile from Mono Lake, California that respires oxyanions of tellurium, selenium, and arsenic. Extremophiles 13: 695 - 705.

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153. **Sun, W., R. Sierra-Alvarez, L. Milner, R.S. Oremland, and J.A. Field.** Arsenite and ferrous iron oxidation linked to chemolithotrophic denitrification for the immobilization of arsenic in anoxic environments. Environ. Sci. Technol. (in press).

RECENT MEDIA ATTENTION AND OUTREACH:

July 16, 2009: Discovery Channel will air a 2 h program "Are We Alone" filmed by Optimem Productions, much of which is devoted to our research activities at Mono Lake. See a preview:
http://dsc.discovery.com/videos/are-we-alone-toxic-soup.html

NPR, "All Things Considered" Interview with Richard Harris. May, 2005:
http://www.npr.org/templates/story/story.php?storyId=4668418

San Jose Mercury News, June 26, 2005: "Microbes thrive amid arsenic in lake" story by Glennda Chui.

Elected by the magazine Popular Science for one of the Ten Worst Jobs in Science (2005)…this was humorous fallout from the 2005 Science paper and the fact that these lakes smell bad due to an abundance of ripe microbially-derived volatiles.

BBC Radio, "Name Your Poison" show about my arsenic research. Audio interview with Joylon Jenkins, April, 2006 (15 minutes; 48 Mbyte file available on request).

July 13, 2007: KGO TV (local ABC affiliate, channel 7) news report on Mono Lake: http://abclocal.go.com/kgo/index?section=assignment_7&id=3270563

Filmed a portion of the show on location at Mono Lake. Workaholic Productions was contracted by the History Channel to shoot the series "How Life Began" focusing on extremophiles, exobiology, and microbes. We showcased aspects of Mono Lake (August, 2007).

I was interviewed in 2006 by Dr. Ken Ford (retired Director of the American Institute of Physics) for a section of an upcoming book on microbiologists and their motivations/background (co-authored by the late D.C. White and K.H. Nealson).

Invited Lectures/Seminars/Workshops/Miscellaneous Leadership since 2003:

(note that my records for 2001, 2002, and much of 2003 are missing; however I do recall giving invited plenary talks on arsenic/selenium themes at the ASM annual meeting in 2002, and the Gordon Conference on Environmental Bio-Inorganic Chemistry in 2003)

1.DOI Workshop on Selenium and the Salton Sea, Sacramento, CA, March 11, 2003.
2. Invited seminar, visiting scientist, The Geomicrobiology of Arsenic, Dept Biology, Rensselaer Polytechnic Institute, Troy, NY June, 2003.
3. Invited seminar, visiting scientist, The Geomicrobiology of Arsenic, Dept. Microbiology, Montana State University, Bozeman, MT, September, 2003.
4. Invited visiting scientist/lecturer, The geomicrobiology of arsenic. Dept. Microbiology, Cornell Univ., October, 2003. Ithica, NY.
5. Invited seminar, The geomicrobiology of arsenic. Dept. Civil & Environ. Engineering, UC Berkeley (Jan., 2004).
6. Invited Lecture, The geomicrobiology and nanoscience of arsenic and selenium. Rutgers State University, New Brunswick, NJ, (March, 2004).
7. Invited workshop participant and lecturer at National Research Board of Canada-sponsored meeting on Arsenic water pollution in Bangladesh (and genome sequencing of arsenic-metabolizing bacteria). Montreal, Canada, March, 8, 2004.
8. Invited talk, The Geomicrobiology of Arsenic, Max Planck Inst. For Terrestrial Microbiology, Marburg, Germany, April, 2004.
9. Invited symposium lecture: Microbial redox cycling of arsenic and selenium, Amer. Soc. Microbiology annual meeting, New Orleans, LA (May, 2004).
Invited lecture, Dave Boone Testimonial Banquet, The geomicrobiology of arsenic. Oregon Graduate Institute, Portland,OR (June, 2004).
10. Invited plenary talk, American Society for Microbiology Ann. Meet., The geomicrobiology and nanoscience of arsenic and selenium. New Orleans, May, 2004.
11. Invited seminar, The geomicrobiology of arsenic. Oregon Graduate Inst., Portland, OR, June, 2004.
12. Invited Session Chair, Gordon Res. Conf. on Metabolism of 1–carbon compounds, Mt. Holloyoke, MA. July, 2004.

13. Invited plenary lecture, The geomicrobiology of arsenic, Int'l Symposium on Microbial Ecology, Cancun, MX, August, 2004.
14. Invited seminar, The geomicrobiology of arsenic. UC Santa Cruz, Sept., 2004.
Invited seminar & visiting scientist, The geomicrobiology of arsenic, Univ. Georgia, Athens, GA, Oct., 2004.
15. Invited "role model lecturer" for gov't scientist carrier track, ASM workshop for grad students and postdocs, Univ. Conn., July, 2004.
16. **Invited plenary lecture**, The geomicrobiology of selenium and arsenic, Gordon Research Conference on molybdenum and tungsten containing enzymes, July, 2004.
17. Invited seminar, The geomicrobiology of arsenic, Univ. Calif. Irvine, Nov., 2004.
18. Invited seminar, The geomicrobiology of arsenic, Univ. Calif. Riverside, Nov., 2004.
19. Invited plenary lecture, The geomicrobiology of arsenic, The Mineralogical Society of Great Britain, Bath, UK, Jan., 2005.
20. Invited seminar and visiting scientist, The geomicrobiology of arsenic, Univ. Arizona, Tucson, AZ, March, 2005.
21. Invited seminar, The geomicrobiology of arsenic, Tiburon Lab/SF State Univ., April, 2005.
22. Invited seminar, The geomicrobiology of arsenic, Rutgers State Univ., April, 2005.
23. Invited seminars and visiting scientist, 1) The geomicrobiology of arsenic, 2) The geomicrobiology of selenium, Univ. Calif. Santa Barbara, May, 2005.
24. Invited meeting lecture, The geomicrobiology of arsenic and its relevance to exobiology, ISSM-ISEB joint meeting, Jackson, WY, August, 2005.
25. Invited participant, Biosignatures of Life from Space workshop, NASA Jet Propulsion Lab, Pasadena, CA, July, 2005.
26. American Soc. For Microbiology, Colloquium topic planning session committee for 2006 annual meeting, San Francisco, CA, April, 2005 (They accepted 2 out 3 of my suggestions: "Environmental Metagenomics: Promise and Limitations" and "Microbial Biogeochemistry in Extreme Environments").
27. Invited seminar, visiting scientist, The Geomicrobiology of Arsenic, Dept. Geology, Arizona State UNIV, November, 2005.
28. Invited plenary lecture, The Geomicrobiology of Arsenic in Searles Lake, CA., Fall AGU Meeting, San Francisco, CA. Dec. 2005.
29. Invited visiting scientist/lecturer, The Geomicrobiology of arsenic. Dr. J. Banfield's Research Group, Univ. California Berkeley, January, 2006.
30. Served on panel for NASA Exobiology Proposals review, January, 2006.
31. Invited seminars (2), The geomicrobiology of arsenic. The geomicrobiology of selenium. Dept. Geology & Environmental Sciences, Stanford Univ, February, 2006.
32. Invited plenary talk, American Society for Microbiology Ann. Meet., The geomicrobiology of arsenic. Orlando, FL, May, 2006.
33. Invited seminar and visiting scientist, The geomicrobiology of arsenic. Desert Res. Institute, UNLV, UNIV Las Vegas, NV, May, 2006.
34. WRD Lecture, The geomicrobiology of arsenic, USGS, Menlo Park, CA,. May, 2006.
35. Invited meeting talk, The Geomicrobiology of Arsenic in Closed Basin Lakes, Fall AGU Meeting, San Francisco, CA. Dec. 2006.
36. Invited seminar, The Geomicrobiology & Nanoscience of Selenium and Tellurium; The Molecular Foundry, Lawrence Berkeley Lab, February, 2007.

37. Invited visiting scientist/lecturer, The Geomicrobiology of arsenic. RSMAS, University of Miami, April, 2007.
38. Visiting Scientist/lecturer for RSMAS- Univ. Miami/Explorer of the Seas Cruise, May, 2007.
39. Invited seminar and workshop participant: NASA Ames Research Center, Biomining of the Lunar Regolith, The Geomicrobiology of arsenic, May, 2007.
40. Invited seminar, The Geomicrobiology of arsenic, DOE Joint Genomes Institute, Walnut Creek, CA, August, 2007.
41. Invited seminars and visiting scientist, Harvard University, October, 2007: 1) The Geomicrobiology of arsenic; 2) What's for Breakfast?: Acetylene metabolism in primordial communities on early Earth and elsewhere in the Solar System .
42. Invited lecture, The Geomicrobiology of Arsenic, Oregon St. Univ./Portland St. Univ. joint lecture series, October, 2007.
43. Invited Lecture, The Ecology of Arsenic, USGS, Reston, VA, Dec. 2007.
44. Invited meeting lecture. Nano-sized minerals of elemental selenium and Tellurium formed by bacterial dissimilatory reduction of Se- and Te-oxyanions. Fall AGU Meeting, San Francisco, Dec. 2007.
45. Invited lecture: The geomicrobiology and anoscience of Se and Te. Dept. Geol. Env. Sciences, Stanford Univ., Febr. 2008.
46. Invited Lecture, Dept. Environmental Engineering, Stanford Univ., The Geomicrobiology of Arsenic, March, 2008.
47. Invited plenary talk (declined due to conflict with Max Planck visit), The Geomicrobiology of Arsenic in Extreme Environments, British Ecology Society, Birmingham, UK, April, 2008.
48**.** WebEx Lecture to Nanoscience Initiative White Paper Committee, Microbial formation of Se, Te, and As nanomaterials, June, 2008.
49. Invited lecture: The Ecology of Arsenic. USGS Flagstaff, AZ, June, 2008.
50. Invited meeting lecture, Reconciling Genome Annotations with Physiology of Chemo-autotrophic Arsenic-Respiring Bacteria Isolated from Extreme Environments. Gordon Conference on the Molecular Basis of Microbial One Carbon Metabolism, Maine, July, 2008.
51. Invited lecture, Carnegie Institute, Stanford, CA, The ecology of arsenic. Nov., 2008.
52. Invited meeting lecture, Autotrophic Arsenic Bacteria, AGU Fall Meeting, San Francisco, CA, Dec. 2008.
53. Invited meeting lecture: The arsenic and photosynthetic microbes. ASM annual meeting, Philadelphia, PA, May, 2009.
54. Invited lecture, and visiting scientist, Univ. Minnesota, March, 2009.
55. Invited lecture, Arizona State Univ., April, 2009.
56. Invited lecture and visiting scientist, UC Santa Cruz, April, 2009.
57. Invited lecture, Stanford Research Institute, May, 2009.

External Competitive Research Funding: 2002 - 2007

1. NASA Exobiology Program: "Investigation of Alternative Anaerobic Biogeochemical Redox Cycles in Volcanic, Hypersaline Environments: Earth,

Mars, and Europa. 2002 – 2005 (Approx. $ 380 K; Renewed 2006 – 2008; approx. $ 450 K). Re-renewed 2009 – 2013.

2. NASA Astrobiology Instrument Development Program (ASTID) with JPL, Pasadena. Investigating the Microbiology of Hypersaline Brines (2005 – 2007; $ 90 K).
3. NASA Exobiology Program: "Acetylene as a Substrate for the Development of Anaerobic Microbial Ecosystems on Primordial earth: Implications for Microbial Life on Planets and Satellites with Jovian/Titan-like atmospheres" 2007 – 2009 (approx. $ 480 K).
4. Director's Venture Capital Program: The Redox Cycle of Tellurium: An Integrated Application of Nano-, Micro-, and Biogeo-sciences. (2004 – 2006; $ 75 K).

Recent Academic Service: I served as an external reviewer for 4 promotion/tenure package reviews during the summer of 2009. These individuals are as follows:

1. Prof. Melanie Mormile, Missouri Univ. Science & Technology, promotion to full professor.
2. Prof. Nathan Yee, Rutgers State Univ., promotion to associate professor with tenure.
3. Prof. David Valentine, Univ. Calif. San Barbara, promotion to full professor.
4. Prof. Chad Saltikov, Univ. Calif. Santa Cruz, promotion to associate professor with tenure.

Incidental information:

Postdocs supervised:
R.L. Smith, J.P. Zehr, N.A. Steinberg, P.T. Visscher, M.Marvin-DiPasquale, M.J. Herbel, K.D. Goodwin, L.J. Matheson, T.R. Kulp.

Students supervised (usually on their thesis/dissertation committees; most worked in my lab for some time interval as well as indicated by asterisk):
S. Polcin*, C.W. Culbertson*, L.M. Marsh*, C. Umberger*, J. Duff* (all SF State Univ.)
R.P. Kiene* (Stony Brook)
J. Healy (Stanford)
S. Ni (Oregon Graduate Center)
A. Laverman* (Univ. Amsterdam)
D. Newman* (Princeton)
J. Fischer (Univ. Georgia)
S. Baesman* (SF State Univ.)
External dissertation examiner: R. vanden Hoven (LaTrobe Univ., Melbourne).

Technicians trained that went on to either grad school or other gov't positions:
T. Connell Hancock, C.W. Culbertson, J. Guidetti, P.R. Dowdle, J.E. Schaefer, M.D. Coulatkis