

PAUL G. FALKOWSKI

Date of Birth: 4 January 1951
 Place of Birth: New York City, New York
 Married, two children

Educational Background

<i>Degree</i>	<i>Institution Conferring</i>	<i>Field</i>	<i>Year</i>
B.S.	City College of the City University of New York	Biology	1972
M.A.	City College of the City University of New York	Biology	1973
Ph.D.	University of British Columbia	Biology	1975

Professional Background

Post-Doctoral Research Associate, University of Rhode Island	1975-76
Assistant Scientist, Brookhaven National Laboratory	1976-78
Associate Scientist, Brookhaven National Laboratory	1978-80
Scientist, Brookhaven National Laboratory (with tenure from 1984)	1980-1993
Visiting Research Scientist, National Institute for Basic Biology (with Dr. Y. Fujita), Okazaki, Japan	1985
Visiting Research Scientist, Dept. of Pure and Applied Biology, Imperial College of Science and Technology (with Dr. J. Barber), London	1985
Visiting Lecturer in summer courses at Hawaii Institute of Marine Biology	1984, 5, 9
Adjunct Senior Scientist, Israel Oceanographic and Limnological Research Institute, Haifa	1985-
Head, Oceanographic Sciences Division, Brookhaven National Laboratory	1987-1991
Visiting Lecturer, Marine Molecular Biology Course, UCLA	1989
Adjunct Full Professor, State University of New York, Stony Brook	1990-
Visiting Research Director, CNRS - Laboratoire de physique et chimie marines, Villefranche-sur-Mer, France (with Dr. A. Morel)	1992
Senior Scientist, Brookhaven National Laboratory	1993-98
Deputy Chairman for Environmental Research, Department of Applied Science, Brookhaven National Laboratory	1994-98
Head, Environmental Biophysics and Molecular Biology Program, Brookhaven National Laboratory	1995-98
Professor II, Department of Geological Sciences and Institute of Marine and Coastal Science, Rutgers University	1998-
Distinguished Visiting Scholar, University of Hawaii	2002
Board of Governors Professor in Geological and Marine Science, Rutgers University	2005-
Director, Rutgers Energy Institute	2006-

Awards

Medical Research Council Fellowship in Biophysics (1976)
 Thomas Byrne Award - University of British Columbia (1997)
 Distinguished Visiting Professor, University of Maryland (1989)
 Distinguished Visiting Professor, University of Rhode Island (1991)
 John Simon Guggenheim Fellow (1992-1993)
 Ida and Cecil Green Distinguished Professor (1995-96)
 Huntsman Medal (1998)
 Hutchinson Award (2000)
 Board of Trustees Award for Excellence in Research, Rutgers University (2000)
 Fellow, American Geophysical Union (2001)
 Fellow, American Academy of Arts and Sciences (2003)
 Vernadsky Medal, European Geosciences Union (2005)
 Board of Governors Professor, Rutgers University (2005)
 Member, National Academy of Sciences (2007)
 Fellow, American Academy of Microbiology (2008)

Recent Grants (partial listing)

NSF - SOFEX (2000 - 03)
 NSF – Role of Mesoscale eddies on biogeochemical cycling (2003-2006)
 NSF – Lead Principal Investigator, Biocomplexity award (2000-05)
 DOD – SERDP (2003-06)
 NASA – Natural Iron Fertilization (2004 – 07)
 Moore Foundation – Recovering genomic information from the oldest ice on Earth (2004-2006)
 NASA – Exobiology

Current Research Interests

Biogeochemical cycles, photosynthesis, plant physiology, biological oceanography, molecular biology, biochemistry and biophysics, physiological adaptation, evolution, mathematical modeling, symbiosis.

Member

National Academy of Sciences
 American Geophysical Union
 American Society of Limnology and Oceanography
 American Society of Plant Physiologists
 American Phycological Society
 The Oceanography Society
 Executive Committee, NASA SeaWiFS Science Team
 Member, Joint Global Ocean Flux Study Working Group on Primary Productivity
 Chairman, Brookhaven Symposium in Biology 1980: Primary Productivity in the Sea
 Chairman, First Gordon Conference on Biochemistry and Genetic Engineering of Microalgal Products; August 1988
 Associate Editor, Journal of Phycology (1984-1986)

Chairman, Brookhaven Symposium in Biology 1991: Primary Productivity and Biogeochemical Cycles in the Sea

Chairman, DOE Workshop on Molecular Bases of Ecology, 1991

Member, Joint Global Ocean Flux Study Working Group on Optics

Member, National Research Council Review Committee of Office of Naval Research Alternative Fluorocarbon Environmental Assessment Study - Ecological Effects Advisory Committee

Guest Editor, Special Volume of Photosynthesis Research on Global Change (1992-1993)

Associate Editor: Global Change Biology (1995 to present)

Co-Chair, NATO Advanced Study Institute on Molecular Ecology of Aquatic Microbes (1994)

Chairman, DOE Initiative for Molecular Ecology Research - Convened Asilomar and Belmont Conferences and wrote/edited conference reports

Chairman, NASA Ocean Primary Productivity Working Group

Member, Scientific Advisory Board - Stazione Zoologica Anton Dohrn, Naples (1994-1999)

Guest Editor, Special Issue of Deep Sea Research (1994, 2001)

Associate Editor, Limnology and Oceanography (1995- present)

U.S. Coordinator for IPCC reports on ocean research

Member, US Joint Global Ocean Flux Science Steering Committee

Member, Earth System Science and Applications Advisory Committee (NASA)

Chairman, NASA Biological Oceanography Advisory Board

Member, American Society of Microbiology Workshop on Global Change and Human Health (1997)

Co-organizer, XIth International Photosynthesis Congress.

Member, Mars Architecture Planning Committee (NASA)

Member, International JGOFS Science Steering Committee

Board of Reviewing Editors, Science

Member, Astrobiology Oversight Committee (NASA)

Member, US SOLAS Advisory Committee (NSF)

Member, EDOCC Planning Committee (NSF)

Member, DOE Ocean Carbon Sequestration Program

Member, US Carbon Cycle Science Steering Committee

Associate Editor, Encyclopedia of Biodiversity (Academic Press)

Associate Editor, Photosynthesis Research

Associate Editor, Protist (1995-1999)

Associate Editor, Ecosystems (1999-2003)

Member, The New York Academy of Sciences

Member, Sigma Xi

Member, International Geosphere Biosphere Program GAIM

Co-Chair, International Geosphere Biosphere Program—Carbon Cycle Working Group

Member, Astrobiology Roadmap Team (NASA – 2002)

Section Head, Faculty of 1000

Associate Editor, Environmental Microbiology

Associate Editor, Geobiology

Member, National Research Council Committee on Defining and Advancing the Conceptual Basis of Biology

Member, Terrestrial Planet Finder Science Working Group
 Associate Editor, Encyclopedia Oceanography, Elsevier
 Director, Rutgers Energy Institute (2006-)
 Co-Director, Center For Marine Biotechnology, Rutgers University (2005-)

Cruise Experience (partial listing)

R/V Knorr	Northwest Atlantic	1981
R/V Oceanus	Northwest Atlantic	1984
R/V Cape Hatteras (Chief Scientist)	Middle Atlantic Bight	1988
R/V Endeavor (Chief Scientist)	Middle Atlantic Bight	1989
R/V A'talant	Subtropical Atlantic/ Northwest Africa upwelling region	1992
R/V Atlantis/RSS Alvin	Juan de Fuca Ridge	2000
R/V Knorr	Black Sea	2001
R/V/ Oceanus	Sargasso Sea	2004

Peer-Reviewed Publications

1. Falkowski, P.G. 1973. The respiratory physiology of hemocyanin in *Limulus polyphemus*. J. Exp. Zool. 186: 1-6.
2. Falkowski, P.G. 1974. Facultative anaerobiosis in *Limulus polyphemus*: phosphoenolpyruvate carboxykinase and heart activities. Comp. Biochem. Physiol. 49B: 749-759.
3. Falkowski, P.G. 1975. Nitrate uptake in marine phytoplankton: (nitrate, chloride)-activated adenosine triphosphatase from *Skeletonema costatum* (Bacillariophyceae). J. Phycol. 11: 323-326.
4. Falkowski, P.G. 1975. Nitrate uptake in marine phytoplankton: comparison of half-saturation constants from seven species. Limnol. Oceanogr. 20: 412-417.
5. Falkowski, P.G. and D.P. Stone. 1975. Nitrate uptake in marine phytoplankton: energy sources and the interaction with carbon fixation. Mar. Biol. 32: 77-84.
6. Falkowski, P.G. and R.B. Rivkin. 1976. The role of glutamine synthetase in the incorporation of ammonium in *Skeletonema costatum* (Bacillariophyceae). J. Phycol. 12: 448-450.
7. Falkowski, P.G. 1977. A theoretical description of nitrate uptake kinetics in marine phytoplankton based on bisubstrate kinetics. J. theo. Biol. 64: 375-379.
8. Falkowski, P.G. 1977. The adenylate energy charge in marine phytoplankton: The effect of temperature on the physiological state of *Skeletonema costatum* (Grev.) Cleve. J. exp. mar. Biol. Ecol. 27: 37-45.
9. Falkowski, P.G. and T.G. Owens. 1978. The effects of light intensity on photosynthesis and dark respiration in six species of marine phytoplankton. Mar. Biol. 45: 289-295.
10. Owens, T.G., D.M. Riper, and P.G. Falkowski. 1978. Studies of delta-aminolevulinic acid dehydrase from *Skeletonema costatum*, a marine plankton diatom. Plant Physiol. 62:

- 516-521.
11. D.M. Riper, T.G. Owens, and P.G. Falkowski. 1979. Chlorophyll turnover in *Skeletonema costatum*, a marine plankton diatom. *Plant Physiol.* 64: 49-54.
 12. Falkowski, P.G., T.S. Hopkins, and J.J. Walsh. 1980. An analysis of factors affecting oxygen depletion in the New York Bight. *J. Mar. Res.* 38: 479-506.
 13. Owens, T.G., P.G. Falkowski, and T.E. Whitledge. 1980. Diel periodicity of chlorophyll in marine phytoplankton. *Mar. Biol.* 59: 71-77.
 14. Falkowski, P.G. and T.G. Owens. 1980. Light-shade adaptation: two strategies in marine phytoplankton. *Plant Physiol.* 66: 592-595.
 15. Falkowski, P.G. and Z. Dubinsky. 1981. Light-shade adaptation of *Stylophora pistillata*, a hermatypic coral from the Gulf of Eilat. *Nature* 289: 172-174.
 16. Falkowski, P.G. 1981. Light-shade adaptation and assimilation numbers. *J. Plankton Res.* 3: 203-216.
 17. Falkowski, P.G. and C.D. Wirick. 1981. A simulation model of the effects of vertical mixing on primary productivity. *Mar. Biol.* 65: 69-75.
 18. Falkowski, P.G., T.G. Owens, A.C. Ley, and D. Mauzerall. 1981. The effect of growth irradiance on the ratio of reaction centers in two species of marine phytoplankton. *Plant Physiol.* 68: 969-973.
 19. Falkowski, P.G. and J. Sucher. 1981. Rapid, quantitative separation of chlorophylls and their degradation products by high-performance liquid chromatography. *J. Chromatogr.* 213: 349-351.
 20. Falkowski, P.G. and T.G. Owens. 1982. A technique for estimating phytoplankton division rates using a DNA-binding fluorescent dye. *Limnol. Oceanogr.* 27: 776-782.
 21. Owens, T.G. and P.G. Falkowski. 1982. Enzymatic degradation of chlorophyll *a* by marine phytoplankton *in vivo*. *Phytochem.* 21: 979-984.
 22. Falkowski, P.G. 1983. Vertical mixing and light-shade adaptation: a comparative field study. *J. Mar. Res.* 41: 215-237.
 23. Precali, R. and P.G. Falkowski. 1983. Incorporation of ¹⁴[C]-glutamate into proteins and chlorophylls in *Dunaliella tertiolecta*, a marine chlorophyte. *Biol. Plant.* 25: 187-195.
 24. Malone, T.C., P.G. Falkowski, T.S. Hopkins, G.T. Rowe, and T.E. Whitledge. 1983. Mesoscale response of diatom populations to a wind event in the plume of the Hudson River. *Deep-Sea Res.* 30: 149-170.
 25. Falkowski, P.G., J. Vidal, T.S. Hopkins, G.T. Rowe, T.E. Whitledge, and W.G. Harrison. 1983. Summer nutrient dynamics of the Middle Atlantic Bight: primary production and utilization of phytoplankton carbon. *J. Plankton Res.* 5: 515-537.
 26. Harrison, W.G., D. Douglas, P.G. Falkowski, G.T. Rowe, and J. Vidal. 1983. Summer nutrient dynamics of the Middle Atlantic Bight: nitrogen uptake and regeneration. *J. Plankton Res.* 5: 539-556.
 27. Raps, S., K. Wyman, H.W. Siegelman, and P.G. Falkowski. 1983. Adaptation of the cyanobacterium, *Microcystis aeruginosa*, to light intensity. *Plant Physiol.* 72: 829-832.
 28. Falkowski, P.G. 1984. Kinetics of light intensity adaptation in *Dunaliella tertiolecta*: a marine plankton chlorophyte. *Photosynthetica* 18: 62-68.
 29. Malone, T.C., T.S. Hopkins, P.G. Falkowski, and T.E. Whitledge. 1983. Production and transport of phytoplankton biomass over the continental shelf of the New York Bight. *Cont. Shelf Res.* 1: 305-337.

30. Falkowski, P.G. 1984. Physiological responses of phytoplankton to natural light regimes. *J. Plankton Res.* 6: 295-307.
31. Falkowski, P.G., K. Wyman, and D. Mauzerall. 1984. Effects of continuous background irradiance on xenon-flash-induced fluorescence yields in marine microalgae. *Proc. Sixth Int'l. Photosynthesis Cong., Brussels* 1: 163-166.
32. Muscatine, L., P.G. Falkowski, and Z. Dubinsky. 1983. Carbon budgets in symbiotic associations. In *Proc. 2nd int. Coll. Endocytobiology*, W. Schwemmler and H. Schenk, eds., de Gruyter and Co. Pub., p. 649-658.
33. Dubinsky, Z., P.G. Falkowski, L. Muscatine, and J.W. Porter. 1984. The absorption and utilization of radiant energy by light and shade-adapted colonies of the symbiotic coral *Stylophora pistillata*. *Proc. Roy. Soc. Lond. B* 222B: 203-214.
34. Muscatine, L., P.G. Falkowski, J.W. Porter, and Z. Dubinsky. Fate of photosynthetically fixed carbon in light and shade-adapted colonies of the symbiotic coral, *Stylophora pistillata*. *Proc. Roy. Soc. Lond. B* 222B: 181-202.
35. Porter, J.W., L. Muscatine, Z. Dubinsky, and P.G. Falkowski. Primary production and photoadaptation in light and shade-adapted colonies of the symbiotic coral, *Stylophora pistillata*. *Proc. Roy. Soc. Lond. B* 222B: 161-180.
36. Falkowski, P.G., Z. Dubinsky, L. Muscatine, and J.W. Porter. 1984. Light and the bioenergetics of a symbiotic coral. *Bioscience* 34: 705-709.
37. Falkowski, P.G., Z. Dubinsky, and K. Wyman. 1985. Growth-irradiance relationships in phytoplankton. *Limnol. Oceanogr.* 30: 311-321.
38. Post, A., K. Wyman, Z. Dubinsky, and P.G. Falkowski. 1984. Kinetics of light intensity adaptation in a marine diatom. *Mar. Biol.* 83: 231-238.
39. Falkowski, P.G., Z. Dubinsky, and G. Santostefano. 1985. Light-enhanced dark respiration in phytoplankton. *Verh. Internat. Verein. Limnol.* 22: 2830-2833.
40. Falkowski, P.G., K. Wyman, A.C. Ley, and D. Mauzerall. 1986. Relationship of steady-state photosynthesis to fluorescence in eucaryotic algae. *Biochim. Biophys. Acta* 849: 183-192.
41. Dubinsky, Z., P.G. Falkowski, and K. Wyman. 1986. Light harvesting and utilization in phytoplankton. *Plant Cell Physiol.* 27: 1335-1349.
42. Post, A.F., Z. Dubinsky, K. Wyman, and P.G. Falkowski. 1985. Physiological responses to light intensity transitions in a marine plankton diatom. *Mar. Ecol. Prog. Ser.* 25: 141-149.
43. Falkowski, P.G. and D.A. Kiefer. 1985. Chlorophyll *a* fluorescence: Relationship to primary production and phytoplankton biomass. *J. Plankton Res.* 7: 715-731.
44. Park, Y., E.J. Carpenter, and P.G. Falkowski. 1986. Ammonium excretion and glutamic dehydrogenase activity of zooplankton in Great South Bay, New York. *J. Plankton Res.* 8: 489-503.
45. Falkowski, P.G., Y. Fujita, A.C. Ley, and D.C. Mauzerall. 1986. Evidence for cyclic electron flow around photosystem II in eucaryotic algae. *Plant Physiol.* 81: 310-312.
46. Falkowski, P.G., C.N. Flagg, G.T. Rowe, S.L. Smith, T.E. Whiteledge, and C.D. Wirick, 1988. The fate of a spring phytoplankton bloom: export or oxidation. *Cont. Shelf. Res.* 8: 457-484.
47. Sukenik, A., J. Bennett, and P.G. Falkowski. 1987. Light saturated photosynthesis: limitation by electron transport or carbon fixation? *Biochim. Biophys. Acta.* 891: 205-215.
48. Sukenik, A., J. Bennett, and P.G. Falkowski. 1988. Changes in the abundance of individual

- LHC I and LHC II apoproteins with growth irradiance in the marine chlorophyte, *Dunaliella tertiolecta*. *Biochim. Biophys. Acta* 932: 206-215.
49. Mortain-Bertrand, A. and P.G. Falkowski. 1989. Mise en evidence d'une relation entre fluorescence et carotenoides: une possibilite d'ameliorer les modeles de production primaire. *C.R. Acad. Sci. Paris* 309: 13-18.
 50. Rowe, G., R. Theroux, W. Phoel, H. Quinby, R. Wilke, D. Koschoveck, T. Whitley, P.G. Falkowski, and C. Fray. 1988. Benthic carbon budgets for the continental shelf south of New England. *Cont. Shelf Res.* 8: 511-527.
 51. Wyman, K.D., Z. Dubinsky, J.W. Porter, and P.G. Falkowski. 1987. Light absorption and utilization among hermatypic corals: A study in Jamaica, West Indies. *Mar. Biol.* 96: 283-292.
 52. Rowe, G.T., S. Smith, P.G. Falkowski, and others. 1986. Do continental shelves export organic matter? *Nature* 324: 559-561.
 53. Sukenik, A., P.G. Falkowski, and J. Bennett. 1987. The potential enhancement of photosynthetic energy conversion in algal mass culture. *Biotech. Bioeng.* 30: 970-977.
 54. Berner, T., and others. 1986. The measurement of primary productivity in a high-rate oxidation pond (HROP). *J. Plankton Res.* 8: 659-672.
 55. Sukenik, A., K.D. Wyman, J. Bennett, and P.G. Falkowski. A novel mechanism for regulating the excitation of Photosystem II in a green alga. *Nature* 327: 704-707.
 56. Sukenik, A., J. Bennett, and P.G. Falkowski. 1989. Energy transfer of LHC II in *Dunaliella tertiolecta* is unusually sensitive to Triton X-100. *Photosyn. Res.* 21: 37-44.
 57. Dubinsky, Z., P.G. Falkowski, A.F. Post, and U.M. van Hes. 1987. A system for measuring phytoplankton photosynthesis in a defined light field with an oxygen electrode. *J. Plankton Res.* 9: 607-612.
 58. Zehr, J., P.G. Falkowski, and D. Capone. 1988. Coupling between ¹³N ammonium uptake and incorporation in a marine diatom. *Limnol. Oceanogr.* 33: 518-527.
 59. Falkowski, P.G., Z. Kolber, and Y. Fujita. 1988. Dynamics of electron flow around photosystem II during steady-state photosynthesis in eucaryotic algae. *Biochim. Biophys. Acta* 933: 432-443.
 60. Kolber, Z., J. Zehr, and P.G. Falkowski. 1988. Effects of growth irradiance and nitrogen limitation on photosynthetic energy conversion in Photosystem II. *Plant Physiol.* 88: 923-929.
 61. Kolber, Z., K.D. Wyman, and P.G. Falkowski. 1990. Natural variability in photosynthetic energy conversion efficiency: A field study in the Gulf of Maine. *Limnol. Oceanogr.* 35: 72-79.
 62. Zehr, J., D.C. Capone, and P.G. Falkowski. Rapid incorporation of ¹³NO₃ by NH₄-limited phytoplankton. *Mar. Ecol. Prog. Ser.* 51: 237-251.
 63. Muscatine, L., P.G. Falkowski, Z. Dubinsky, P.A. Cook, and L. McCloskey. 1989. The effect of external nutrient resources on the population dynamics of zooxanthellae in a reef coral. *Proc. R. Soc. Lond.* B236: 311-324.
 64. Rahav, O., Z. Dubinsky, Y. Achituv, and P.G. Falkowski. 1989. Ammonium metabolism in the symbiotic coral, *Stylophora pistillata*. *Proc. R. Soc. Lond.* B236: 325-337.
 65. Zehr, J. and P.G. Falkowski. 1988. Pathway of ammonium assimilation in a marine diatom determined with the radiotracer ¹³N. *J. Phycol.* 24: 588-591.
 66. Mortain-Bertrand, A. and P.G. Falkowski. 1990. Photoregulation of the light-harvesting

- chlorophyll complex associated with Photosystem II in *Dunaliella tertiolecta*. Evidence that LHCII apoproteins are stable without chlorophyll. *Plant Physiol.* 94: 304-311.
67. Berner, T., K. Wyman, and P.G. Falkowski. 1989. Photoadaptation and the "package" effect in *Dunaliella tertiolecta* (Chlorophyta). *J. Phycol.* 25: 70-78.
 68. Herzig, R. and P.G. Falkowski. 1989. Nitrogen limitation in *Isochrysis galbana* (Haptophyceae). I. Photosynthetic energy conversion and growth efficiencies. *J. Phycol.* 25: 462-471.
 69. Falkowski, P.G., A. Sukenik, and R. Herzig. 1989. Nitrogen limitation in *Isochrysis galbana* (Haptophyceae). II. Relative abundance of chloroplast proteins. *J. Phycol.* 25: 471-478.
 70. LaRoche, J., J. Bennett, and P.G. Falkowski. 1990. Characterization of a cDNA encoding for a 28.5 kDa LHC II apoprotein from the unicellular marine chlorophyte *Dunaliella tertiolecta*. *Gene* 95: 165-171.
 71. Falkowski, P.G. 1991. Species variability in the fractionation of ^{13}C and ^{12}C by marine phytoplankton. *J. Plankton Res.* 13: 21-28.
 72. Wegner, H.C., R. Herzig, P.G. Falkowski, and D.H. Turpin. 1989. Respiratory losses in the light in a marine diatom: Measurements by short-term mass-spectrometry. *Limnol. Oceanogr.* 34: 1153-1161.
 73. Sukenik, A., J. Bennett, A. Mortain-Bertrand, and P.G. Falkowski. 1990. Adaptation of the photosynthetic apparatus to irradiance in *Dunaliella tertiolecta* - A kinetic study. *Plant Physiol.* 92: 891-898.
 74. Dubinsky, Z., N. Stambler, M. Ben-Zion, L.R. McCloskey, L. Muscatine, and P.G. Falkowski. 1990. Effects of external nutrient sources on the optical properties and photosynthetic efficiency of *Stylophora pistillata*. *Proc. Roy. Soc. B* 239: 231-246.
 75. Falkowski, P.G. and J. LaRoche. 1990. Molecular biology in studies of ocean processes. *Int. Rev. Cytol.* 128, 261-303.
 76. Ohki, K., J. Zehr, P.G. Falkowski, and Y. Fujita. 1991. Regulation of nitrogenase in the marine, non-heterogeneous cyanobacterium *Trichodesmium* sp. *Arch. Microbiol.* 156: 335-337.
 77. Falkowski, P.G. and J. LaRoche. 1991. Acclimation to spectral irradiance in algae. *J. Phycol.* 27(1): 8-14.
 78. Falkowski, P.G., D. Ziemann, Z. Kolber, and P.K. Bienfang. 1991. Role of eddy pumping in enhancing primary production. *Nature* 352: 55-58.
 79. Sancetta, C., T. Villareal and P.G. Falkowski. 1991. Massive fluxes of Rhizosolenid diatoms: A common occurrence? *Limnol. Oceanogr.* 36: 1452-1457.
 80. Greene, R., R. Geider, and P.G. Falkowski. 1991. Effect of iron limitation on photosynthesis in a marine diatom. *Limnol. Oceanogr.* 36: 1772-1782.
 81. LaRoche, J., A. Mortain-Bertrand, and P.G. Falkowski. 1991. Light-intensity induced changes in cab mRNA and light-harvesting complex II apoprotein levels in the unicellular chlorophyte *Dunaliella tertiolecta*. *Plant Physiol.* 97: 147-153.
 82. Sukenik, A., R.S. Levy, Y. Levy, P.G. Falkowski, and Z. Dubinsky. 1991. Optimizing algal biomass production in an outdoor pond: A simulation model. *J. Appl. Phycol.* 3: 191-201.
 83. Falkowski, P.G., Y.-S. Kim, Z. Kolber, C. Wilson, C. Wirick, and R. Cess. 1992. Distinguishing between anthropogenic and natural factors affecting low-level cloud albedo over the North Atlantic Ocean. *Science* 256: 1311-1313.

84. Falkowski, P.G. and C. Wilson. 1992. Phytoplankton productivity in the North Pacific in relation to the absorption of anthropogenic CO₂. *Nature* 358: 741-743.
85. Greene, R.M., R.J. Geider, Z. Kolber, and P.G. Falkowski. 1992. Iron-induced changes in light harvesting and photochemical conversion processes in eucaryotic marine algae. *Plant Physiol.* 100: 565-575.
86. Falkowski, P.G. 1992. Biotechnology and global climate change. *Current Opinion in Biotechnology* 3: 286-290.
87. Falkowski, P.G., P. Biscaye, and C. Sancetta. 1994. The lateral flux of biogenic particles from the Eastern North American continental margin to the North Atlantic Ocean. *Cont. Shelf Res.* 41: 583-601.
88. Falkowski, P.G., Z. Dubinsky, L. Muscatine, and L. McCloskey. 1993. Population control in symbiotic corals. *BioScience* 43: 606-611.
89. Falkowski, P.G. and Z. Kolber. 1993. Estimating phytoplankton photosynthesis by active fluorescence. In *Ocean Productivity: From Molecules to Space*, S. Maestrini and W. Li, eds., *Int. Cons. Explor. Mer.* 197: 92-103.
90. LaRoche, J., R. Geider, and P.G. Falkowski. 1993. Molecular biology in studies of oceanic primary production. In *Ocean Productivity: From Molecules to Space*, S. Maestrini and W. Li, eds., *Int. Cons. Explor. Mer.* 197: 42-51.
91. Falkowski, P.G., R.M. Greene, and R.J. Geider. 1992. Physiological limitations on phytoplankton productivity in the ocean. *Oceanography* 5: 84-91.
92. Kolber, Z. and P.G. Falkowski. 1993. Using active fluorescence to derive phytoplankton photosynthesis *in situ*. *Limnol. Oceanogr.* 38: 1646-1665.
93. Kemp, P.F., P.G. Falkowski, C. Flagg, W. Phoel, S. Smith, D.W.R. Wallace, and C.D. Wirick. 1994. Modeling vertical oxygen and carbon flux during stratified spring and summer conditions on the continental shelf, Middle Atlantic Bight, eastern U.S.A. *Deep-Sea Res.* 41: 629-655.
94. Geider, R.J., R.M. Greene, Z. Kolber, H. MacIntyre, and P.G. Falkowski. 1993. Fluorescent assessment of the maximum quantum efficiency of photosynthesis in the western North Atlantic Ocean. *Deep-Sea Res.* 40: 1205-1224.
95. Grobbelaar, J.U., F. Schanz, Z. Dubinsky, M.M. Tilzer, T. Burger-Wiersma, M. Rijkeboer, J. Lemoalle, and P.G. Falkowski. 1992. Photosynthetic characteristics of five high light and low light exposed microalgae as measured with ¹⁴C-uptake and oxygen electrode techniques. *Marine Microbial Food Webs* 6(1): 3-19.
96. Greene, R.M., Z. Kolber, D.G. Swift, N.W. Tindale, and P.G. Falkowski. 1994. Physiological limitation of phytoplankton photosynthesis in the eastern equatorial Pacific determined from variability in the quantum yield of fluorescence. *Limnol. Oceanogr.* 39: 1061- 1074.
97. Olaiwola, M., J. LaRoche, Z. Kolber and P.G. Falkowski. 1994. Non-photochemical quenching and the diadinoxanthin cycle in a marine diatom. *Photosyn. Res.* 41: 357-370.
98. LaRoche, J., D. Henry, K. Wyman, A. Sukenik and P.G. Falkowski. 1994. Cloning and nucleotide sequence of a cDNA encoding a major fucoxanthin-, chlorophyll a/c-containing protein from the chrysophyte *Isochrysis galbana*: implications for the evolution of the *cab* gene family. *Plant Mol. Biol.* 25: 355-368.
99. Kolber, Z., R.T. Barber, K.H. Coale, S.E. Fitzwater, R.M. Greene, K.S. Johnson, S. Lindley and P.G. Falkowski. 1994. Iron limitation of phytoplankton photosynthesis in the equatorial

- Pacific Ocean. *Nature* 371: 145-149.
100. Martin et al. 1994. Testing the iron hypothesis in the ecosystems of the equatorial Pacific ocean. *Nature* 371: 123-129.
 101. Vassiliev, I.R., O. Prasil, K.D. Wyman, Z. Kolber, A. Hanson, Jr., J.E. Prentice, and P.G. Falkowski. 1994. Inhibition of PSII photochemistry by PAR and UV radiation in natural phytoplankton communities. *Photosyn. Res.* 42: 51-64.
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Additional Publications

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3. Falkowski, P.G. 1978. Nitrogen assimilation in lower plants. In *Nitrogen in the Environment*, Vol. 2, D.R. Nielsen and J.G. Macdonald, ed., pp. 143-155, Academic Press, New York.
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6. Falkowski, P.G., Editor. 1980. *Primary Productivity in the Sea*. Plenum Press, New York, 522 pp.
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- Management of Large Marine Ecosystems*, K. Sherman, L.M. Alexander, and B.D. Gold, Eds., pp. 35-48. Westview Press, Boulder, San Francisco, Oxford.
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 30. Falkowski, P.G. 2001. Biogeochemical Cycles. In *Encyclopedia of Biodiversity*. Academic Press, New York. pp 437-453.
 31. Chisholm, S.W., P.G. Falkowski, and J.J. Cullen. 2001. Dis-crediting ocean fertilization. *Science* 294: 309-310.

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33. Falkowski, P.G. 2002. On the evolution of the carbon cycle. *In Phytoplankton Productivity: Carbon assimilation in marine and freshwater ecosystems.* P. J. LeB. Williams, D.N. Thomas and C.S. Reynolds (eds). Blackwell. Pp. 318-349.
34. Falkowski, P. G. and Y.B. Chen 2003. Photoacclimation of light harvesting systems in eucaryotic algae. *In Light Harvesting Systems.*, ed. B. Green and W. Parsons. Kluwer, Amsterdam (in press).
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42. Falkowski, P. G., O. Schofield, M. Katz, Bas van Schootbrugge and A. H. Knoll. Why is the land green and the ocean red? 2004. *In. Coccolithophorids.* Ed. H. Thierstein and J. Young. Springer-Verlag. Berlin. pp. 429-453.
43. Falkowski, P.G. and C. de Vargas. 2004. Shotgun sequencing in the sea: a blast from the past? *Science* 304: 58-60.
44. Gorbunov, M. Y. and P. G. Falkowski (2004). Fluorescence Induction and Relaxation (FIRE) Technique and Instrumentation for Monitoring Photosynthetic Processes and Primary Production in Aquatic Ecosystems. "Photosynthesis": Fundamental Aspects to Global Perspectives, Montreal, Allen Press.
45. Falkowski, P.G. 2006. Tracing oxygen's imprint on Earth's metabolic evolution. *Science* 311: 1724-1725.
46. Falkowski, P.G. and J.A. Raven. 2007. *Aquatic Photosynthesis* (2nd edition). Princeton University Press. Princeton, 484 pp.
47. Falkowski, P.G. and A.H. Knoll (eds). 2007. *The Evolution of Aquatic Photoautotrophs.* Academic Press. New York, 456 pp.
48. Falkowski, P.G. and A.H. Knoll. 2007. An introduction to primary producers in the sea: who they are, what they do, and when they evolved. *In The Evolution of Aquatic Photoautotrophs*, P.G. Falkowski and A.H. Knoll (eds). Academic Press. New York, 456 pp.

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51. Berman-Frank, I, Y.-B. Chen, Y. Gao, K. Fennel, M. Follows, A.J. Milligan and P.G. Falkowski. 2008. Global change & N cycle. *In* Nitrogen in the Marine Environment, D.G. Capone, D.A. Bronk, M.R. Mulholland and E.J. Carpenter (eds). Elsevier, Inc. (in press).

Other Publications

1. Falkowski, PG. 2003. When politics trumps science. *New York Times* 21 June.
2. Falkowski, PG. 2001. A climate pact without America. *New York Times* 25 July.
3. Falkowski, PG. 2000. The environment, and our votes. *New York Times* 31 August.
4. Falkowski, PG. 2007. Secret life of plants. (book review) *Nature* 447: 778).
5. Falkowski, PG. 2008. Find our energy expertise. *New York Times* 13 July.

Invited Lectures and Meetings

- | | |
|------|---|
| 2003 | ASLO Meeting – Salt Lake City, UT
University of Nagoya—Japan
Pennsylvania State
University of Maryland
University of Miami
Stanford
Cal Tech
University of Hawaii
Dahlem Conference—Berlin
Gordon Research Conference (Photosynthesis) |
| 2004 | Gordon Research Conference (Bioinorganic Chemistry)
Harvard
Carnegie Institute of Washington
Agouron Workshop
Santa Fe Institute
University of Connecticut
Scripps Institute of Oceanography
Geobiology Symposium (USC) |
| 2005 | European Geosciences Union – Vernadsky Medal Lecture
Goldschmidt Conference – Invited keynote lecture |

Princeton University
 University of Southern Denmark
 University of Copenhagen

- 2006 Louisiana State University, School of the Coast and Environment
 Central Caribbean Marine Institute for Educational Fundraising, London
 AAAS—Invited speaker
 Lehigh University
 PSA Meeting—Juneau, Alaska
 ASLO/AGU—meeting in Honolulu, HI
 Peking University, Beijing
 Center for Quaternary Research, Xian
 University of Xiamen
 Chinese Academy of Sciences Eighth International Conference on Development
 of Drylands Feb 25-28, 2006—Invited speaker
- 2007 Natural Science Foundation—NRC Committee
 Conceptual Basis of Biology meetings—Seattle, Washington
 European Phycological Congress—Invited speaker, Oviedo, Spain
 International Photosynthesis Congress, Invited speaker, Glasgow, Scotland
 The Royal Society—London, UK
 Jacques Monod Conferences—Roscoff, France
 NASA Science Update Panel SeaWiFS Anniversary
 AQUAFLUO Conference—Invited speaker, Prague, Czech Republic
- 2008 NAS Annual Meeting—Washington D.C.

Students

D.M. Riper - SUNY at Stony Brook, M.Sc. 1979
 J. Budin - SUNY at Stony Brook
 J. Sucher - Southampton College
 N. Noy - SUNY at Stony Brook
 G. Santostefano - Southampton College
 Y. Park - SUNY at Stony Brook, Ph.D. 1988
 T. Arroll - Southampton College, B.Sc. 1990
 M. Tedesco - SUNY at Stony Brook, M.Sc. 1991
 D. Henry - SUNY at Stony Brook, M.Sc. 1991
 A. Milligan - SUNY at Stony Brook, M.Sc. 1991
 M. Olaizola - SUNY at Stony Brook, Ph.D. 1993
 A. Subramaniam - SUNY at Stony Brook, Ph. D. 1995
 J. Bauman - SUNY at Stony Brook, M.Sc. 1993
 S. Tozzi- Rutgers University, M.Sc. 2002
 Z. Finkel - Rutgers University, Ph. D. 2004
 T. Shi - Rutgers University, Ph. D. 2006

M. Oliver – Rutgers University, Ph. D. 2006
 F. Wolfe - Rutgers University, Ph. D. 2006
 S. Whittaker – Rutgers University, M.S. 2008
 A. Kahl – Rutgers University, Ph. D. 2008
 R. Howard – Scripps Institute of Oceanography, Ph.D. (in progress)
 C. Yan - Rutgers University, Ph. D. (in progress)
 G. Robbins – Rutgers University, Ph. D. (in progress)

Ph.D. Advisor for

Elizabeth Coper - Columbia University, Ph D. 1980
 Stephen Schaffer - New York University, Ph D. 1984
 Ivor Elrifi - Queens University, Kingston, Ontario Ph. D. 1988
 Richard Greene - SUNY at Stony Brook Ph. D. 1994
 Richard Reynolds - University of Southern California h. D. 1993
 Ming-Yi Sun - SUNY at Stony Brook, Ph. D. 1992
 Zachary Johnson – Duke University Ph. D. 2000
 Jay Cullen, Rutgers University, Ph D. 2000
 Joseph Grzymiski, Rutgers University, Ph. D. 2001
 Tricia Bergmann, Rutgers University, Ph.D. 2003
 Nicolas Cassar, University of Hawaii Ph. D. 2003
 Matthew Oliver, Rutgers University, Ph.D. 2006
 Yongchen Ji, Rutgers University, Ph.D. 2006
 Alex Kahl, Rutgers University, Ph.D. 2008

Visiting Scientists (Scientists who have worked in my laboratory)

Dr. Zvy Dubinsky, Bar Ilan University, Ramat Gan, Israel
 Robert Precali, Ruder Boskovic Institute, Rovinj, Yugoslavia
 Dr. Anton Post, Laboratory of Microbiology, University of Amsterdam
 Dr. Robert Kinzie, Dept. of Zoology, University of Hawaii
 Dr. Tamar Berner, Dept. of Life Sciences, Bar Ilan University
 Dr. James Aiken, Inst. of Marine Environmental Research, Plymouth, U.K.
 Dale Robinson, University of Southern California
 Dr. Leonard Muscatine, University of California, Los Angeles
 Dr. Richard Geider, College of Marine Science, University of Delaware
 Dr. Kaori Ohki, National Institute for Basic Biology, Ikazaki, Japan
 Dr. Ondrej Prasil, Institute of Microbiology, Czech Academy of Sciences, Trebon,
 Czech Republic
 Dr. Ian Davison, Dept. of Botany, University of Maine, Orono
 Dr. Joseph Berry, Carnegie Institute for Plant Science, Stanford, California
 Dr. Jean-Marc Ducruet, Dept. Of Biophysics, Saclay, France
 Dr. Barry Osmond, Australian National University
 Dr. Heather Stoll, Harvard

Dr. Mario Giordano, University of Ancona, Italy
Dr. Yong Park, Inha University, Korea
Dr. Maria Segovia, Queens University, Belfast
Dr. Sang Hoon Lee, Oceanographic Research and Development Institute, Korea
Dr. Amos Israel, University of Haifa
Dr. Rosalind Rickaby, Oxford University
Dr. Jean Paul Gattuso, CNRS – France
Dr. Alan Townsend, University of Colorado
Dr. Joon-Baek Lee, Cheju National University, Korea

Post-doctoral Fellows

Dr. Assaf Sukenik (Director, Israel Limnological Center)
Dr. Zbigniew Kolber (Research Engineer, MBARI)
Dr. Jonathan Zehr (Professor of Marine Science, UC Santa Cruz)
Dr. Ronny Herzig (Professor, University of Haifa)
Dr. Julie LaRoche (Professor, University of Kiel)
Dr. Anne Mortain-Bertrand (Professor, University of Bordeaux)
Dr. Paul Kemp (Research Professor, SUNY Stony Brook)
Dr. Richard Greene (Research Scientist, EPA)
Dr. Jean-Michel Escoubas (Research Scientist, CNRS)
Dr. Ilya Vasil'ev (Senior Scientist, Lasertech)
Dr. John Berges (Associate Professor, University Michigan, Milwaukee)
Dr. Michael Behrenfeld (Research Scientist, Goddard Space Flight Center)
Dr. Ondrej Prasil (Director of Research, Trebon, Czech Republic)
Dr. Juan Vergara (Associate Professor, University of Cadiz)
Dr. Dion Durnford (Associate Professor, University of New Brunswick, Canada)
Dr. Maxim Gorbunov (Associate Research Professor, Rutgers University)
Dr. Ilana Berman-Frank (Assistant Professor, Bar Ilan University)
Dr. Yibu Chen (Research Information Technology Specialist, University of Pittsburgh)
Dr. Debora Iglesias-Rodriguez (Research Scientist, Southampton Oceanography Centre)
Dr. Yorum Gerchman (Research Associate, Princeton University)
Dr. Yi Sun (Research Associate, Waksman Institute)
Dr. Michal Koblizek (Research Scientist, Trebon, Czech Republic)
Dr. Antoinetta Quigg (Assistant Professor, Texas A&M)
Dr. Daniel Grzebyk (Research Assistant Professor, Rutgers University)
Dr. Kay Bidle (Assistant Professor, Rutgers University)
Dr. Elena Litchman (Assistant Professor, Georgia Tech)
Dr. Andrew Irwin (Assistant Professor, Mount Alison College)
Dr. Danny Tchernov (Assistant Professor, Hebrew University)
Dr. Bas van Schootbrugge (C2 Professor, Johann Wolfgang Goethe University, Frankfurt)
Dr. Trevor Bailey (Lecturer, University of Cardiff)
Dr. Thomas Bibby (Lecturer, Southampton Oceanography Centre)
Dr. Lin Jiang (Assistant Professor, Georgia Institute of Technology)
Dr. Allen Milligan (Assistant Research Professor, Oregon State University)

Dr. Diana Nemergut (Assistant Professor, University of Colorado)
Dr. Huiyan Yang (Maricopa Association of Governments)
Dr. Yael Helman (Tel Aviv University)
Dr. Tracy Quan (present post-doc)
Dr. Assaf Vardi (present post-doc)
Dr. Matthew Johnson (present post-doc)
Dr. Eric Hajanirana Andrianasolo (present post-doc)
Dr. Pedro Cermeno (present post-doc)

Consultant

Chelsea Instruments
Ciencia

Patents

Pump and probe fluorometer (with Z. Kolber). Patent 4,942,303 (July 17, 1990).
Fast repetition rate fluorometer (with Z. Kolber) Patent 5,426,306 (June 20, 1995).
Multiple Protocol Fluorometer and Method (with Z. Kolber) Patent 6,121,053 (Sept. 19, 2000).
McFP encoding nucleic acids, polypeptides, antibodies and methods and use thereof. (with Yi Sun) US Patent 6,933, 375 (August 2005)