

## 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

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|--|------------|
| 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<br>(with Dr. Y. Fujita), Okazaki, Japan                                  | 1985       |
| Visiting Research Scientist, Dept. of Pure and Applied Biology, Imperial<br>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<br>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,<br>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,<br>Brookhaven National Laboratory                               | 1994-98    |
| Head, Environmental Biophysics and Molecular Biology Program,<br>Brookhaven National Laboratory  | 1995-98    |
| Distinguished Professor, Department of Geological Sciences and Institute of Marine and<br>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-      |
| Visiting Research Director, CNRS – Station Biologique, Roscoff, France (with C. de<br>Vargas)  | 2009       |
| Bennett L. Smith Chair in Business and Natural Resources, Rutgers University   | 2012-      |

### **Awards**

Medical Research Council Fellowship in Biophysics (1976)  
 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)  
 Thomas Byrne Award - University of British Columbia (1997)  
 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)  
 Gerald W. Prescott Award (2008)  
 Commemorative Medal Prince Albert 1<sup>ER</sup> de Monaco (2010)  
 Ecology Institute Prize in Marine Ecology (2010)  
 Governing Council, National Academy of Sciences (2010-2013)  
 Grass Fellow, Radcliffe Institute for Advanced Studies (2011)  
 Fellow, Ecological Society of America (2012)  
 Einstein Professor, Chinese Academy of Sciences (2012)  
 The Rockefeller Foundation, The Bellagio Center, Academic Writing Residency (2017)  
 Tyler Prize (2018)

### **Recent Grants** (partial listing)

DOD – SERDP (2003-15)  
 NASA – Exobiology (2016-19)  
 NASA – Lifetime analyses in the upper ocean (2009-2011)  
 Gordon and Betty Moore Foundation - Constructing an Annotated Metabolic Map of Earth's  
 Coupled Microbial Redox Reactions (2015-18)  
 NSF - Ocean Acidification (2014-17)

### **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- 2006)  
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- )  
 Associate Editor, Treatise on Geochemistry, Vol. 11 Organic Geochemistry (2013)  
 Advisor, National Geographic Television (Atlas Media)  
 Board of Reviewing Editor - eLife  
 Chair, Section 63, Environmental Sciences and Ecology, National Academy of Sciences (2016-present)  
 Member, NSF Advisory Committee on Geosciences  
 Member, NSF Advisory Committee on the State of the Sciences in Astrobiology

#### **Cruise Experience** (partial listing – over 44 cruises)

|                                     |  |      |
|-------------------------------------|--|------|
| 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/<br>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 |
| R/V Gould                           | Antarctica   | 2016 |

#### **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 <sup>14</sup>[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 <sup>13</sup>N 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  $^{13}\text{NO}_3$  by  $\text{NH}_4$ -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  $^{13}\text{N}$ . *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  $^{13}\text{C}$  and  $^{12}\text{C}$  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 CO<sub>2</sub>. *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  $^{14}\text{C}$ -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. Olaizola, 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.
  102. Long, S.P., S. Humphries and P.G. Falkowski. 1994. Photoinhibition of photosynthesis in nature. *Ann. Rev. Plant Physiol. Plant Mol. Biol.* **45**: 633-662.
  103. Falkowski, P.G. (1995) Ironing out what controls primary production in the nutrient rich waters of the open ocean. *Global Change Biol.* **1**: 161-163.
  104. Vassiliev, I.R., Z. Kolber, D. Mauzerall, V.K. Shukla, K.D. Wyman and P.G. Falkowski. 1995. Effects of iron limitation on photosystem II composition and energy trapping in *Dunaliella tertiolecta*. *Plant Physiol.* **109**: 963-972.
  105. Falkowski, P.G., Z. Kolber and D. Mauzerall, 1994. A comment on the call to throw away your fluorescence induction apparatus. *Biophys. J.* **66**: 923-928.
  106. Falkowski, P.G. 1994. The role of phytoplankton photosynthesis in global biogeochemical cycles. *Photosyn. Res.* **39**: 235-258.
  107. Biscaye, P.E., C.N. Flagg, and P.G. Falkowski. 1994. The Shelf-Edge Exchange Processes experiment, SEEP-II: an introduction to hypotheses, results and conclusions. *Deep-Sea Res.* **41**: 231-252.
  108. Falkowski, P.G. and Z. Kolber. 1995. Variations in chlorophyll fluorescence yields in phytoplankton in the world oceans. *Aust. J. Plant Physiol.* **22**: 341-355.
  109. Escoubas, J-M, M. Lomas, J. LaRoche and P.G. Falkowski. 1995. Light intensity regulates *cab* gene transcription via the redox state of the plastoquinone pool. *Proc. Nat. Acad. Sci. USA* **92**: 10237-10241.
  110. Behrenfeld, M.J. and P.G. Falkowski. 1997. Photosynthetic rates derived from satellite-based chlorophyll concentration. *Limnol. Oceanogr.* **42**: 1-20.
  111. Berges, J.A., D.O. Charlebois, D.C. Mauzerall, and P.G. Falkowski. 1996. Differential effects of nitrogen limitation on photosynthetic efficiency of Photosystems I and II in microalgae. *Plant Physiol.* **110**: 689-696.
  112. Machalek, K.M., I.R. Davison, and P.G. Falkowski. 1996. Thermal acclimation and

- photoacclimation of photosynthesis in the brown alga *Laminaria saccharina*. *Plant Cell Environ.* 19: 1005-1016.
113. Prasil, O., Z. Kolber, J.A. Berry, and P.G. Falkowski. 1996. Cyclic flow around Photosystem II *in vivo*. *Photosyn. Res.* 48: 395-410.
  114. Behrenfeld, M. J., A. J. Bale, Z.S. Kolber, J. Aiken and P.G. Falkowski. 1996. Confirmation of limitation of phytoplankton photosynthesis in the eastern Equatorial Pacific. *Nature* 383: 508-511.
  115. Babin, M.A, Morel, H. Claustre, A. Bricaud, Z. Kolber and P. G. Falkowski. 1996 Nitrogen- and irradiance-dependent variations of the maximum quantum yield of carbon fixation in eutrophic, mesotrophic and oligotrophic marine systems. *Deep-Sea Res.* 43: 1241-1272.
  116. Berges, J. A. and P. G. Falkowski. 1996. Cell-associated proteolytic enzymes from marine phytoplankton. *J. Phycol.* 32: 566-574.
  117. Falkowski, P. G. 1997. Evolution of the nitrogen cycle and its influence on the biological sequestration of CO<sub>2</sub> pump in the ocean. *Nature* 387: 272-275.
  118. Durnford, D. and P.G. Falkowski. 1997. Chloroplast redox regulation of nuclear gene transcription during photoacclimation. *Photosyn. Res.* 53: 229-241.
  119. Behrenfeld, M. J. and Falkowski. 1997. A consumer's guide to primary productivity models. *Limnol. Oceanogr.* 42: 1497-1491.
  120. Falkowski, P. G. 1997. Photosynthesis: The paradox of carbon dioxide efflux. *Curr. Biol.* 7: R637-R639.
  121. Partensky, F., La Roche, J., Wyman, K., & Falkowski, P. G. 1997. The divinyl-chlorophyll a/b-protein complexes of two strains of the oxyphototrophic marine prokaryote *Prochlorococcus*—characterization and response to changes in growth irradiance. *Photosynthesis research*, 51(3), 209-222.
  122. Berges, J. A. and P. G. Falkowski. 1998. Cell death in unicellular algae: the role of proteases. *Limnol. Oceanogr.* 43: 129-135.
  123. Kolber, Z., O. Prasil and P. G. Falkowski. 1998. Measurements of variable fluorescence using fast repetition rate techniques. I. Defining methodology and experimental protocols. *Biochim, Biophys. Acta.* 1367: 88-106.
  124. LaRoche, J, R. Nuzzi, R. Waters, K. Wyman, P. G. Falkowski and D.W.R. Wallace. 1997. Brown Tide blooms in Long Island's coastal waters linked to interannual variability in groundwater flow. *Global Change Biol.* 3: 397-410.
  125. Vergara J.J., J.A. Berges, and P.G. Falkowski. Diel periodicity of nitrate reductase activity and protein levels in the marine diatom *Thalassiosira weissflogii* (Bacillariophyceae). *J. Phycol.* 34:952-961.
  126. Lardens, A, B. Forster, O, Prasil, P.G. Falkowski, V. Sobolev, M. Edelman, C.B. Osmond, N.W. Gillham and J.E. Boynton. 1998. Biophysical, biochemical and physiological characterization of *Chlamydomonas rehhardtii* mutants with amino acid substitutions at the ALA251 residue in the D1 protein that result in varying levels of photosynthetic competence. *J. Biol. Chem.* 273: 11082-91.
  127. Sakshaug, E, A. Bricaud, Y. Dandonneau, P.G. Falkowski, D.A. Kiefer, L. Legendre, A. Morel, J. Parslow and M. Takahashi. 1997. Parameters of photosynthesis: definitions, theory and interpretation of results. *J. Plankton Res.* 19: 1637-1670.
  128. Falkowski, P.G., R.T. Barber, and V. Smetacek. 1998. Biogeochemical controls and

- feedbacks on ocean primary production. *Science*. 281: 200-206.
129. Field, C.B., M.J. Behrenfeld, J.T. Randerson and P.G. Falkowski. 1998. Primary production of the biosphere: Integrating terrestrial and oceanic components. *Science*. 281: 237-240.
  130. Behrenfeld, M.J., O. Prasil, Z.S. Kolber, M. Babin and P.G. Falkowski. 1998. Compensatory changes in Photosystem II electron turnover rates protect photosynthesis from photoinhibition. *Photosyn. Res.* 58: 259-268.
  131. Subramaniam, A., E.J. Carpenter, D. Karenz and P.G. Falkowski. 1999. Bio-optical properties of the marine diazotrophic cyanobacteria *Trichodesmium* spp. I. Absorption and photosynthetic action spectra. *Limnol. Oceanogr.* 44: 608-617.
  132. Subramaniam, A., E.J. Carpenter and P.G. Falkowski. 1999. Bio-optical properties of the marine diazotrophic cyanobacteria *Trichodesmium* spp. II. A reflectance model for remote sensing. *Limnol. Oceanogr.* 44: 618-627.
  133. Raven, J.A. and P.G. Falkowski. 1999. Oceanic sinks for atmospheric CO<sub>2</sub>. *Plant Cell Environ.* 22:741-755.
  134. Gorbunov, M.Y., Z.S. Kolber and P.G. Falkowski. 1999. Measuring photosynthetic parameters in individual algal cells by Fast Repetition Rate Fluorometry. *Photosyn. Res.* 62: 141-153.
  135. Laws, E.A., P.G. Falkowski, W.O. Smith, Jr. and J.J. McCarthy. 2000. Temperature effects on export production in the open ocean. *Global Biogeochem. Cycles* 14:1231-1246.
  136. Gorbunov, M.Y., P.G. Falkowski and Z.S. Kolber. 2000. Measurement of photosynthetic parameters in benthic organisms using a SCUBA-based fast repetition rate fluorometer. *Limnol. Oceanogr.* 45: 242-245.
  137. Kolber, Z.S., C. van Dover, R.A. Niederman, and P.G. Falkowski. 2000. Bacterial photosynthesis in surface waters of the open ocean. *Nature* 407: 177-179.
  138. Falkowski, P.G. 2000. Rationalizing elemental ratios in unicellular algae. *J. Phycol.* 36: 3-6.
  139. Falkowski, P.G. et al. 2000. The global carbon cycle: a test of our knowledge of the Earth as a system. *Science* 290: 291-294.
  140. Gao, Y., Y. Kaufman, D. Tanre, D. Kolber and P.G. Falkowski. 2001. Seasonal distributions of atmospheric iron fluxes to the global ocean. *Geophys. Res. Lett.* 28: 29-34.
  141. Campbell, J. and others. 2002. Comparison of algorithms for estimating ocean primary production from surface chlorophyll, temperature and irradiance. *Global Biogeochem. Cycles*. 16: GB 001444.
  142. Gorbunov, M.Y., Z.S. Kolber, M.P. Lesser, and P.G. Falkowski. 2001. Photosynthesis and photoprotection in symbiotic corals. *Limnol. Oceanogr.* 46:75-85.
  143. Behrenfeld, M. and others. 2001. Biospheric primary production during an ENSO transition. *Science* 291: 2594-2597.
  144. Berman-Frank, I., J. Cullen, Y. Hareli, R. Sherrell, and P. G. Falkowski. 2001. Iron availability, cellular iron quotas, and nitrogen fixation in *Trichodesmium*. *Limnol Oceanogr.* 46:1249-1260.
  145. Kolber, Z.S., F.G. Plumley, A.S. Lang, J.T. Beatty, R.E. Blankenship, C.L. VanDover, C. Vetriani, M. Koblizek, C. Rathgeber, and P.G. Falkowski. 2001. Contribution of Aerobic Photoheterotrophic Bacteria to the Carbon Cycle in the Ocean. *Science* 292: 2492-2495.
  146. Falkowski, P.G. and Y. Rosenthal. 2001. Biological diversity and resource plunder in the

- geological record: Casual correlations or causal relationships? Proc. Nat. Acad. Sci. USA 98: 4290-4292.
147. Segovia, M., L. Haramaty, Y. Chen, T. Shi, J. A. Berges and P.G. Falkowski. 2003. Cell death in the unicellular chlorophyte *Dunaliella tertiolecta*. A hypothesis on the evolution of apoptosis in higher plants and metazoans. Plant Physiol. 132: 99-105.
  148. Gorbunov, M.Y. and P.G. Falkowski. 2002. Photoreceptors in cnidarian hosts allow symbiotic corals to sense the light of the blue moon. Limnol. Oceanogr. 47: 309-315.
  149. Doney, S.C., J.A. Kleypas, J.L. Sarmiento and P.G. Falkowski. 2002. The U.S. JGOFS Synthesis and Modeling Project, an Introduction. Deep-Sea Res. II. 49:1-20.
  150. Stoll, H.M., Y. Rosenthal, and P. G. Falkowski. 2001. Climate proxies from Sr/Ca of coccolith calcite: Calibrations from continuous culture of *Emiliania huxleyi*. Geochim. Cosmochim. Acta. 66:927-936.
  151. Chisholm, S.W, P.G. Falkowski and J. Cullen. 2002. Is Ocean Fertilization Credible and Creditable? Science 296: 467-468.
  152. Cullen, J.T., Y. Rosenthal and P.G. Falkowski. 2001. The effect of anthropogenic CO<sub>2</sub> on the carbon isotope composition of marine phytoplankton. Limnol. Oceanogr. 46: 996-998.
  153. Mazel, C.H., M.P. Lesser, T.M. Barry, J.H. Farrell, M.Y. Gorbunov, K.D. Wyman and P.G. Falkowski. 2002. Green fluorescent proteins in Caribbean corals. Limnol. Oceanogr. 48: 402-411.
  154. Berman-Frank, I., P. Lundgren, Y-B Chen, H. Küpper, Z.Kolber, B. Bergman and P.G. Falkowski. 2001. Segregation of nitrogen fixation and oxygenic photosynthesis in the marine cyanobacterium *Trichodesmium*. Science 294: 1534-1537.
  155. Berman-Frank, I. and P.G. Falkowski. 2002. Evolution of nitrogen fixation. Science. 295: 798-799.
  156. Grzebyk, D., O. Schofield, C. Vetriani, and P.G. Falkowski. 2002. The Mesozoic radiation of eucaryotic algae: The portable plastid hypothesis. J. Phycol. 39:259-267.
  157. Grzymiski, Joe, O.M. Schofield, P.G. Falkowski, and J.M. Bernhard. 2002. The function of plastids in the deep-sea benthic foraminifer, *Nonionella stella*. Limnol. Oceanogr. 47: 1569-1580.
  158. Iglesias-Rodriguez, M.D., C. W. Brown, S.C. Doney, J. Kleypas, D. Kolber, Z. Kolber, P.K. Hayes, and P. G. Falkowski. 2002. Representing key phytoplankton functional groups in ocean carbon cycle models: coccolithophorids. Global Biogeochemical Cycles 16: GB001454
  159. Des Marais, D.J., Allamandola, L.J., Benner, S.A., Boss, A.P., Deamer, D., Falkowski, P.G., Farmer, J.D., Hedges, S.B., Jakosky, B.M., Knoll, A.H., Liskowsky, D.R., Meadows, V.S., Meyer, M.A., Pilcher, C.B., Nealson, K.H., Spormann, A.M., Trent, J.D., Turner, W.W., Woolf, N.J. & Yorke, H.W. (2003). The NASA Astrobiology Roadmap. Astrobiology, 3(2): 219-235.
  160. Berman-Frank, I., P. Lundgren, and P.G. Falkowski. 2003. Nitrogen fixation and photosynthetic oxygen evolution in cyanobacteria. Res. Microbiol. 154:157-164.
  161. Quigg, A., T-Y. Ho, Z.V. Finkel, A.J. Irwin, J.R. Reinfelder, O. Schofield, F.M.M. Morel and P.G. Falkowski. 2003. The evolutionary inheritance of elemental stoichiometry in marine phytoplankton. Nature 425, 291 - 294.
  162. Ho, T-Y, A. Quigg, Z.V. Finkle, A.J. Milligan, K. Wyman, P.G. Falkowski, and F.M.M. Morel. 2003. On the elemental composition of some marine phytoplankton. J. Phycol. 39:

- 1145-1159.
163. Koblizek, M, Z. Kolber, and P. G. Falkowski. 2003. The isolation and characterization of *Erythrobacter* sp. strains from the upper ocean. *Arch. Microbiol.* 180: 327-338
  164. Sun, Y., E. Castner, and P.G. Falkowski. 2004. Biophysical characterization of natural and mutant fluorescent proteins cloned from zooxanthellate corals. *FEBS Lett.* 540: 175-183
  165. Chen, Y-B, D. Durnford, M. Koblizek, and P. G. Falkowski. 2004. Plastid regulation of Lhcb1 transcription in the chlorophyte alga, *Dunaliella tertiolecta*. *Plant Physiol.* 136: 3737-3750.
  166. Berman-Frank, I., K. Bidle, L. Haramaty, P.G. Falkowski. 2004. The demise of the marine cyanobacterium, *Trichodesmium* sp., via a programmed cell death pathway. *Limnol. Oceanogr.* 49: 997-1005.
  167. Tozzi, S., O. Schofield, and P. G. Falkowski. 2004. Historical climate change and ocean turbulence as selective agents for two key phytoplankton functional groups. *Mar. Ecol Progr, Ser.* 274: 123-134.
  168. Katz, M.E., J.D. Wright, K.G. Miller, B.S. Cramer, K. Fennel and P.G. Falkowski. 2004. Biological overprint of the geological carbon cycle. *Mar. Geol.* 217: 323-338.
  169. Coale, K.H. et al. 2004. Southern ocean iron enrichment experiment: carbon cycling in high- and low-Si waters. *Science* 304: 408-412.
  170. Tchernov, D. M. Gorbunov, C. de Vargas, S. Narawan Yadav, A. J. Milligan, M. Hagglblom and P.G. Falkowski. (2004) Membrane lipids of symbiotic algae are diagnostic of sensitivity to thermal bleaching in corals. *Proc. Nat. Acad. Sci.* 101: 13531-13535.
  171. Bidle, K.D. and P.G. Falkowski (2004) Cell death in planktonic photosynthetic organisms. *Nature Rev. Microbiol.* 2: 643-655.
  172. Falkowski, P.G., M.E. Katz, A.H. Knoll, A. Quigg, J.A. Raven, O. Schofield, F.J.R. Taylor. 2004. The evolution of modern eukaryotic phytoplankton. *Science* 305: 354-360.
  173. Wolfe-Simon, F., D. Grzebyk, O. Schofield and P.G. Falkowski. 2005. The role and evolution of superoxide dismutases in algae. *J. Phycol.* 41: 453-465.
  174. Shi, T., T. S. Bibby, L. Jiang, A. Irwin and P. G. Falkowski. 2005. Protein interactions limit the rate of evolution of photosynthetic genes in cyanobacteria. *Mol. Biol. Evol.* 22: 2179-2189.
  175. Giordano, M., Y.-B. Chen, M. Koblizek, and P.G. Falkowski (2005). Regulation of nitrate reductase in *Chlamydomonas reinhardtii* by the redox state of the plastoquinone pool. *Eur. J. Phycol.* 40: 345-352.
  176. Katz, M.E., Z.V. Finkel, D. Grzebyk, A.H. Knoll and P.G. Falkowski. 2004. Evolutionary trajectories and biogeochemical impacts of marine eukaryotic phytoplankton. *Ann. Rev. Ecol. Evol. Syst.* 35: 523-556.
  177. Finkel, Z.V., M.E. Katz, J.D. Wright, O.M.E. Schofield and P.G. Falkowski. 2005. Climatically driven macroevolutionary patterns in the size of marine diatoms in the Cenozoic. *Proc. Nat. Acad. Sci. USA.* 102: 8927-8932.
  178. Reuer, M.K., B.B. Barnett, M.L. Bender, P.G. Falkowski and M.B. Hendricks. New estimates of Southern Ocean biological production rates from O<sub>2</sub>/Ar Ratios and the triple isotope composition of O<sub>2</sub>. *Global Biogeochem Cycles. Deep-Sea Res. I.* 54: 951-974.
  179. Jiang, L., O.M.E. Schofield and P.G. Falkowski. 2005. Adaptive evolution of phytoplankton cell size. *Am. Nat.* 166: 496-505.
  180. Falkowski, P.G., M.E. Katz, A.J. Milligan, K. Fennel, B.S. Cramer, M.P. Aubry, R.A.

- Berner, M.J. Novacek and W.M. Zapol. 2005. The rise of oxygen over the past 205 million years and the evolution of large placental mammals. *Science* 309: 2202-2204.
181. Fennel, K., M. Follows and P.G. Falkowski. 2005. The co-evolution of the nitrogen, carbon and oxygen cycles in the Proterozoic ocean. *Am. J. Sci.* 305: 526-545.
182. van de Schootbrugge B., Bailey, T., Rosenthal, Y., Katz, M.E., Wright, J.D., Feist-Burkhardt, S. Miller, K.G. and Falkowski, P.G., 2005. Early Jurassic climate change and the radiation of organic-walled phytoplankton in the Tethys Ocean. *Paleobiology* 31: 73-97.
183. Koblizek, M., P.G. Falkowski, and Z.S. Kolber. (2006) Diversity and distribution of photosynthetic bacteria in the Black Sea. *Deep-Sea Res. II* 53 1934-1944.
184. Behrenfeld, M, R. O'Malley, D.A. Siegel, C.R. McClain, J.L. Sarmiento, G.C. Feldman, A.J. Milligan, P.G. Falkowski, R.M. Letelier, E.S. Boss. 2006. Climate-driven trends in contemporary ocean productivity. *Nature* 444: 752-755.
185. Ananayev, G., Z.S. Kolber, D. Klimov, P.G. Falkowski, J.A. Berry, U. Rascher, R. Martin, B. Osmond. 2005. Remote sensing of heterogeneity in photosynthetic efficiency, electron transport and dissipation of excess light in *Populus deltoids* stands under ambient and elevated CO<sub>2</sub> concentrations, and in a tropical forest canopy, using a new laser-induced fluorescence transient device. *Global Change Biology* 11: 1195-1206.
186. Irwin, A.J., Z.V. Finkel, O.M.E. Schofield, P.G. Falkowski. 2006. Scaling-up from nutrient physiology to the size-structure of phytoplankton communities. *J. Plankton Res.* 28: 459-471.
187. Litchman, E., C.A. Klausmeier, J.R. Miller, O.M. Schofield, P.G. Falkowski. 2006. Multi-nutrient, multi-group model of present and future oceanic phytoplankton communities. *Biogeosciences*. 3: 585-606.
188. Finkel, Z. V., Quigg, A. S., Raven, J. A., Reinfelder, J. R., Schofield, O., Falkowski P. G. 2006. Irradiance and the elemental stoichiometry of marine phytoplankton. *Limnology and Oceanography*. 51: 2690-2701.
189. Wolfe-Simon, F., Starovoyotov, V., Reinfelder, J., Schofield, O., P. Falkowski. 2006. Localization and role of manganese superoxide dismutase in a marine diatom. *Plant Physiol.* 142: 1701-1709.
190. Bidle, K.D., L. Haramaty, J. Barcelos e Ramos, P. Falkowski. 2006. Viral activation and recruitment of metacaspases in the unicellular coccolithophore, *Emiliana huxleyi*. *PNAS* 104: 6049-6054.
191. Hood, R.R, E. Lawson, R.A. Armstrong, N.R. Bates, C.W. Browne, CA. Carlson, F. Chaig, S.C. Doney, P.G. Falkowski, R.A. Feely, M.A.M. Friedrichs, M.R. Landry, J.K. Moore, D.M. Nelson, T.L. Richardson, B. Salihoglu, M.Schartau, D.A. Toole, J.D. Wiggert. 2006. Pelagic functional group modeling: progress, challenges and prospects. *Deep-Sea Research II*: 53: 459-512.
192. Milligan, A.J., I. Berman-Frank, G.C. Dismukes, P.G. Falkowski. 2007. Light-dependent oxygen consumption in nitrogen-fixing cyanobacteria plays a key role in nitrogenase protection. *J. Phycol.* 43: 845-852.
193. McGillicuddy, Jr. D.J., L.A. Anderson, N.R. Bates, T. Bibby, K.O. Buessler, C. Carlson, C. Davis, C. Ewart, P.G. Falkowski, S.A. Goldthwait, D.A. Hansell, W.J. Jenkins, R. Johnson, V.K. Kosnyrev, J.R. Ledwell, Q.P. Li, D.A. Siegel, D.K. Steinberg. 2007. Eddy-wind interactions stimulate extraordinary mid-ocean plankton blooms. *Science* 316: 1021-1026.

194. Finkel, Z.V., A.S. Quigg, R.K. Chiampi, O.E. Schofield, P.G. Falkowski. 2007. Phylogenetic diversity in cadmium: phosphorus ratio regulation by marine phytoplankton. *Limnol. Oceanogr.* 52: 1131-1138.
195. Oliver, M.J., Petrov, D., Ackerly, D., Falkowski, P. Schofield, O.M. 2007. The mode and tempo of genome size evolution in eukaryotes. *Genome Res.* 17: 594-601.
196. Polívka, T., Pšenčík, J., Kroh, P., Engst, D., Komenda, J., Prášil, O., Falkowski, P.G., Hála, J. (2006) Hole-burning study of energy transfer in antenna proteins of *Dunaliella tertiolecta* affected by iron limitation. *Molecular Crystals and Liquid Crystals Science and Technology Section A Molecular Crystals and Liquid Crystals* 291: 111-117.
197. van de Schootbrugge, B., F. Tremolada, Y. Rosenthal, T.R. Bailey, S. Feist-Burkhardt, H. Brinkhuis, J. Pross, D.V. Kent, P.G. Falkowski. 2007. End-Triassic calcification crisis and blooms of organic-walled 'disaster species'. *Palaeogeography, Palaeoclimatology, Palaeoecology* 244: 126-141.
198. Shi, T. Sun, Y., Falkowski, P.G. 2007. Effects of iron limitation on the expression of metabolic genes in the marine cyanobacterium *Trichodesmium erythraeum* IMS101. *Env. Microbiol.* 9: 2945-2956.
199. Falkowski, P.G. and Oliver, M.J. 2007. Mix and match: how climate selects phytoplankton. *Nature Reviews Microbiol.* 5: 813-819.
200. Reuer, M.K., Barnett, B.A., Bender, M.L., Falkowski, P.G., Hendricks, M.B. (2007) New estimates of Southern Ocean biological production rates from  $O_2/Ar$  ratios and the triple isotope composition of  $O_2$ . *Deep-Sea Res. I.* 54: 951-974.
201. Andrianasolo, E., Haramaty, L., Degenhardt, K., Mathew, R., White, E. Lutz, R., Falkowski, P. 2007. Induction of apoptosis by diterpenes from the soft coral, *Xenia elongata*. *J. Nat. Prod.* 70: 1551-1557.
202. Litchman, E., C.A. Klausmeier, O.E.M. Schofield, P.G. Falkowski. 2007. The role of functional traits and trade-offs in structuring phytoplankton communities: scaling from cellular to ecosystem level. *Ecology Letters.* 10:1170-1181.
203. Lee, S., K.D. Bidle, D.R. Marchant, P.G. Falkowski. 2007. Fossil genes and microbes entombed in the oldest ice on earth. *PNAS* 104: 13455-13460.
204. Finkel, Z., J. Sebbo, S. Feist-Burkhardt, A.J. Irwin, M.E. Katz, O.M.E. Schofield, J.R. Young, P.G. Falkowski. 2007. A universal driver of macroevolutionary change in the size of marine phytoplankton over the Cenozoic. *PNAS* 104: 20416-20420.
205. Helman, Y., F. Natale, R.M. Sherrell, M. LaVigne, V. Starovoytov, M.Y. Gorbunov, P.G. Falkowski. 2008. Extracellular matrix production and calcium carbonate precipitation by coral cells *in vitro*. *PNAS* 105: 54-58.
206. Quan, T. M., B. van de Schootbrugge, M. P. Field, Y. Rosenthal, and P.G. Falkowski. 2008. Nitrogen isotope and trace metal analyses from the Mingolsheim core (Germany): Evidence for redox variations across the Triassic-Jurassic boundary. *Global Biogeochem. Cycles* 22 GB2014, doi:10.1029/2007GB002981.
207. Shi, T. and P.G. Falkowski. 2008. Genome evolution in cyanobacteria: the stable core and the variable shell. *PNAS* 105: 2510-2515.
208. Vardi, A., Bidle, K., Kwityn, C., Hirsh, D. J., Thompson, S. M., Callow, J. A., Falkowski, P., Bowler, C. 2008. A diatom gene regulating Nitric-Oxide signaling and susceptibility to diatom-derived aldehydes. *Current Biology* 18: 1-5, doi 10.1016/j.cub.2008.05.037.



209. Falkowski, P. G., Godfrey, L. 2008. Electrons, life and the evolution of Earth's oxygen cycle. *Philosophical Transactions of the Royal Society* **363**: 2705–2716, doi:10.1098/rstb.2008.0054
210. Bibby, T.S., M.Y. Gorbunov, K.W. Wyman, P.G. Falkowski. 2008. Photosynthetic community responses to upwelling mesoscale eddies in the subtropical north Atlantic and Pacific Oceans. *Deep Sea Research Part II: Topical Studies in Oceanography* **55**: 1310-1320.
211. Falkowski, P. G., Fenchel, T., Delong, E. F. 2008. The microbial engines that drive Earth's biogeochemical cycles. *Science* **320**: 1034-1039.
212. Andrianasolo, E. H.; Haramaty, L.; Vardi, A.; White, E.; Lutz, R.; Falkowski, P. 2008. Apoptosis-inducing galactolipids from a cultured marine diatom, *Phaeodactylum tricorutum*. *J. Nat. Prod.* ASAP Article. doi: 10.1021/np800124k
213. Falkowski, P.G., Isozaki, I. 2008. The story of O<sub>2</sub>. *Science* **322**: 540-542.
214. Vardi, A., Thamatrakoln, K., Bidle, K.D., Falkowski, P.G. 2008. Diatom genomes come of age. *Genome Biology* **9**:245, doi:10.1186/gb-2008-9-12-245
215. Quan, T.M., Falkowski, P.G. 2009. Redox control of N:P ratios in aquatic ecosystems. *Geobiology*, *Geobiology* **7**: 124–139, doi: 10.1111/j.1472-4669.2008.00182.x
216. Cermeño, P., Dutkiewicz, S., Harris, R.P., Follows, M., Schofield, O., Falkowski, P.G. 2008. The role of nutricline depth in regulating the ocean carbon cycle. *PNAS* **105**: 20344-20349, doi:10.1073/pnas.0811302106
217. Johnson, M. D., Volker, J. V., Moellera, H. V., Lawsc, E., Breslauer, J., Falkowski, P. G. 2009. Universal constant for heat production in protists. *Proceedings of National Academy of Sciences*. www.pnas.org/cgi/doi/10.1073/pnas.0902005106
218. Andrianasolo, E.H., Haramaty, L., Rosario-Passapera, R., Bidle, K., White, E., Vetriani, C., Falkowski, P., Lutz, R. 2009. Ammonificins A and B, Hydroxyethylamine Chroman Derivatives from a Cultured Marine Hydrothermal Vent Bacterium, *Thermovibrio ammonificans*. *J. Nat. Prod.* **72**: 1216–1219 DOI: 10.1021/np800726d
219. Cermeño P, Falkowski PG. 2009. Controls on diatom biogeography in the ocean. *Science* **325**: 1539-1541.
220. Godfrey, LV, Falkowski, P.G. 2009. The cycling and redox state of nitrogen in the Archaean ocean. *Nature Geosci.* **2**: 725-729.
221. van de Schootbrugge B, Quan TM, Lindstrom S, Falkowski PG, et al. 2009. Floral changes across the Triassic/Jurassic boundary linked to flood basalt volcanism. *Nature Geosci.* **2**: 589-594.
222. Quan TM, Kashiyama Y, Ohkouchi N, Falkowski PG, et al. 2009. Using nitrogen cycle proxies to determine paleoenvironmental variables. *Geochimica et Cosmochimica Acta* **73**: A1064.
223. Richier S, Kerros ME, de Vargas C, Falkowski PG, et al. 2009. Light-dependent transcriptional regulation of genes of biogeochemical interest in the diploid and haploid life cycle stages of *Emiliania huxleyi*. *Applied and Environ. Microbiology* **75**: 3366-3369.
224. Quan, T.M. and P.G. Falkowski. 2009. Redox control of N:P ratios in aquatic ecosystems. *Geobiology*, 2009. **7**(2): p. 124-139.
225. Vittadello, M., Falkowski, P.G et al. 2010. Photoelectron generation by Photosystem II core complexes tethered to gold surfaces. *Chemosuschem.* **3**(4): p. 471-475.
226. Cermeno, P., Falkowski, P.G et al. 2010. Phytoplankton biogeography and community stability in the ocean. *Plos One.* **5**(3).

227. Gleick, P.H., Falkowski, P.G et al. Climate Change and the Integrity of Science. *Science*. 328: p. 689-690.
228. Oliver, M.J., Falkowski, P.G et al. 2010. The mode and tempo of genome size evolution in eukaryotes (vol 33, pg 527, 1997). *Genome Research*. 20(6): p. 874-874.
229. Canfield, D.E., A.N. Glazer, and P.G. Falkowski, 2010. The evolution and future of Earth's nitrogen cycle. *Science*. 330(6001): p. 192-196.
230. Falkowski, P.G. 2011. The biological and geological contingencies for the rise of oxygen on Earth Introduction. *Photosynthesis Research*. 107(1): p. 7-10
231. Tchernov, D., Falkowski, P.G et al. 2011. Apoptosis and the selective survival of host animals following thermal bleaching in zooxanthellate corals. *Proceedings of the National Academy of Sciences of the United States of America*. 108(24): p. 9905-9909.
232. Andrianasolo, E.H., Falkowski, P.G et al. 2011. Bathymodiolamides A and B, Ceramide Derivatives from a Deep-Sea Hydrothermal Vent Invertebrate Mussel, *Bathymodiolus thermophilus*. *Journal of Natural Products*. 74(4): p. 842-846.
233. Moeller, H.V., M.D. Johnson, and P.G. Falkowski. 2011. Photoacclimation in the phototrophic marine ciliate *Mesodinium rubrum* (ciliophora). *Journal of Phycology*. 47(2): p. 324-332.
234. Whittaker, S., Falkowski, P.G et al. 2011. Quantification of nitrogenase in *Trichodesmium* IMS 101: implications for iron limitation of nitrogen fixation in the ocean. *Environmental Microbiology Reports*. 3(1): p. 54-58.
235. Cermeno, P., Falkowski, P.G et al. 2011. Competitive dynamics in two species of marine phytoplankton under non-equilibrium conditions. *Marine Ecology-Progress Series*. 429: p. 19-28.
236. Gorbunov, M.Y., Falkowski PG et al. 2011. A kinetic model of non-photochemical quenching in cyanobacteria. *Biochimica et Biophysica Acta-Bioenergetics*. 1807(12): p. 1591-1599.
237. Koblizek, M., Falkowski PG et al. 2011. Genome Sequence of the Marine Photoheterotrophic Bacterium *Erythrobacter* sp Strain NAPI. *Journal of Bacteriology*. 193(20): p. 5881-5882.
238. Yan, C.Y., Falkowski PG et al. 2011. Photosynthetic energy storage efficiency in *Chlamydomonas reinhardtii*, based on microsecond photoacoustics. *Photosynthesis Research*. 108(2-3): p. 215-224.
239. Harel, A., P. Falkowski, et al. 2012. TrAnsFuSE refines the search for protein function: oxidoreductases. *Integrative Biology* 4(7): 765-777.
240. Falkowski, P. 2012. Ocean Science. The power of plankton. *Nature* 483(7387): S17-S20.
241. Kim, J. D., A. Rodriguez-Granillo, et al. 2012. Energetic selection of topology in ferredoxins. *Plos Computational Biology* 8(4).
242. Mass, T., J. L. Drake, et al. 2012. Aragonite Precipitation by "Proto-Polyps" in Coral Cell Cultures. *PLoS One* 7(4).
243. Burrows, E. H., N. B. Bennette, et al. 2012. Dynamics of lipid biosynthesis and redistribution in the marine diatom *Phaeodactylum tricornutum* under nitrate deprivation. *Bioenergy Research* 5(4): 876-885.
244. Andrianasolo, E. H., L. Haramaty, et al. 2012. Ammonificins C and D, hydroxyethylamine chromene derivatives from a cultured marine hydrothermal vent bacterium, *Thermovibrio ammonificans*. *Marine Drugs* 10(10): 2300-2311. doi:10.3390/md10102300

245. Lutz, R. A., & Falkowski, P. G. 2012. A Dive to Challenger Deep. *Science*, 336(6079), 301-302. doi: DOI 10.1126/science.1222641
246. Thamatrakoln, K., Bailleul, B., Brown, C. M., Gorbunov, M. Y., Kustka, A. B., Frada, M., Bidle, K. D. 2013. Death-specific protein in a marine diatom regulates photosynthetic responses to iron and light availability. *Proceedings of the National Academy of Sciences of the United States of America*, 110(50), 20123-20128. doi: DOI 10.1073/pnas.1304727110
247. Kim, J. D., Senn, S., Harel, A., Jelen, B. I., & Falkowski, P. G. 2013. Discovering the electronic circuit diagram of life: structural relationships among transition metal binding sites in oxidoreductases. *Philosophical Transactions of the Royal Society B-Biological Sciences*, 368(1622). doi: Artn 20120257
248. Quan, T. M., Wright, J. D., & Falkowski, P. G. 2013. Co-variation of nitrogen isotopes and redox states through glacial-interglacial cycles in the Black Sea. *Geochimica et Cosmochimica Acta*, 112, 305-320. doi: DOI 10.1016/j.gca.2013.02.029
249. Mass, T., Drake, J. L., Haramaty, L., Kim, J. D., Zelzion, E., Bhattacharya, D., & Falkowski, P. G. 2013. Cloning and characterization of four novel coral acid-rich proteins that precipitate carbonates in vitro. *Current Biology*, 23(12), 1126-1131.
250. Kim, J. D., Yee, N., Nanda, V., & Falkowski, P. G. 2013. Anoxic photochemical oxidation of siderite generates molecular hydrogen and iron oxides. *Proceedings of the National Academy of Sciences*, 110(25), 10073-10077.
251. Drake, J. L., Mass, T., Haramaty, L., Zelzion, E., Bhattacharya, D., & Falkowski, P. G. 2013. Reply to Ramos-Silva et al.: Regarding coral skeletal proteome. *Proceedings of the National Academy of Sciences of the United States of America*, 110(24), E2147-E2148. doi: DOI 10.1073/pnas.1304591110
252. Drake, J. L., Mass, T., Haramaty, L., Zelzion, E., Bhattacharya, D., & Falkowski, P. G. 2013. Proteomic analysis of skeletal organic matrix from the stony coral *Stylophora pistillata*. *Proceedings of the National Academy of Sciences of the United States of America*, 110(19), 7958-7958. doi: DOI 10.1073/pnas.1305081110
253. Frada, M. J., Burrows, E. H., Wyman, K. D., & Falkowski, P. G. 2013. Quantum requirements for growth and fatty acid biosynthesis in the marine diatom *Phaeodactylum tricorutum* (Bacillariophyceae) in nitrogen replete and limited conditions. *Journal of Phycology*, 49(2), 381-388. doi: Doi 10.1111/Jpy.12046
254. Harrold Jr, J.W., Woronowicz, K., Lamptey, J.L., Awong, J., Baird, J., Moshar, A., Vittadello, M., Falkowski, P.G. and Niederman, R.A., 2013. Functional interfacing of *Rhodospirillum rubrum chromatophores* to a conducting support for capture and conversion of solar energy. *The Journal of Physical Chemistry B*, 117(38), pp.11249-11259.
255. Guerra, L. T., Levitan, O., Frada, M. J., Sun, J. S., Falkowski, P. G., & Dismukes, G. C. 2013. Regulatory branch points affecting protein and lipid biosynthesis in the diatom *Phaeodactylum tricorutum*. *Biomass & Bioenergy*, 59, 306-315. doi: 10.1016/j.biombioe.2013.10.
256. Harel, A., Bromberg, Y., Falkowski, P. G., & Bhattacharya, D. 2014. Evolutionary history of redox metal-binding domains across the tree of life. *Proceedings of the National Academy of Sciences*, 111(19), 7042-7047.
257. Levitan, O., Dinamarca, J., Hochman, G., & Falkowski, P. G. 2014. Diatoms: a fossil fuel of the future. *Trends in Biotechnology*, 32(3), 117-124.
258. Mass, T., Drake, J. L., Peters, E. C., Jiang, W., & Falkowski, P. G. 2014.

- Immunolocalization of skeletal matrix proteins in tissue and mineral of the coral *Stylophora pistillata*. Proceedings of the National Academy of Sciences, 201408621.
259. Senn, S., Nanda, V., Falkowski, P., & Bromberg, Y. 2014. Function-based assessment of structural similarity measurements using metal co-factor orientation. *Proteins-Structure Function and Bioinformatics*, 82(4), 648-656. doi: 10.1002/prot.24442
260. Andrianasolo, E. H., Haramaty, L., White, E., Lutz, R., & Falkowski, P. 2014. Mode of action of diterpene and characterization of related metabolites from the soft coral, *Xenia elongata*. *Marine Drugs*, 12(2), 1102-1115. doi: 10.3390/md12021102
261. Drake, J. L., Mass, T., & Falkowski, P. G. 2014. The evolution and future of carbonate precipitation in marine invertebrates: Witnessing extinction or documenting resilience in the Anthropocene?. *Elementa: Science of the Anthropocene*, 2(1), 000026F
262. Cermeno, P., Falkowski, P. G., Romero, O. E., Schaller, M. F., & Vallina, S. M. 2015. Continental erosion and the Cenozoic rise of marine diatoms. *Proc. Natl. Acad. Sci. U S A*, 112(14), 4239-4244. doi: 10.1073/pnas.1412883112
263. Harel, A., Karkar, S., Cheng, S., Falkowski, P. G., & Bhattacharya, D. 2015. Deciphering Primordial Cyanobacterial Genome Functions from Protein Network Analysis. *Current Biology*, 25(5), 628-634. doi: 10.1016/j.cub.2014.12.061
264. Levitan, O., Dinamarca, J., Zelzion, E., Lun, D. S., Guerra, L. T., Kim, M. K., Falkowski, P. G. 2015. Remodeling of intermediate metabolism in the diatom *Phaeodactylum tricornutum* under nitrogen stress. *Proc Natl Acad Sci U S A*, 112(2), 412-417. doi: 10.1073/pnas.1419818112
265. Falkowski, P. G. 2015. From Light to Life. *Origins of Life and Evolution of Biospheres*, 45(3), 347-350
266. Casey, J. R., Falkowski, P. G., & Karl, D. M. 2015. Substrate selection for heterotrophic bacterial growth in the sea. *Marine Chemistry*, 177, pp.349-356.
267. McNutt, M. K., Abdalati, W., Caldeira, K., Doney, S. C., Falkowski, P. G., et al. 2015. Climate Intervention: carbon dioxide removal and reliable sequestration. *Natl. Acad. Sci. The National Academies Press*.
268. Bailleul, B., Berne, N., Murik, O., Petroustos, D., Prihoda, J., Tanaka, A., Falkowski, P.G. ... & Finazzi, G. 2015. Energetic coupling between plastids and mitochondria drives CO<sub>2</sub> assimilation in diatoms. *Nature*, 524(7565), 366-369.
269. Levitan, O., Dinamarca, J., Zelzion, E., Gorbunov, M. Y., & Falkowski, P. G. 2015. An RNAi knock-down of nitrate reductase enhances lipid biosynthesis in the diatom *Phaeodactylum tricornutum*. *The Plant Journal*, 84(5), pp.963-973.
270. Kim, J., Fabris, M., Baart, G., Kim, M. K., Goossens, A., Vyverman, W., Falkowski, P.G. & Lun, D. S. 2016. Flux balance analysis of primary metabolism in the diatom *Phaeodactylum tricornutum*. *The Plant Journal*, 85(1), 161-176.
271. Lin, H., Kuzminov, F. I., Park, J., Lee, S., Falkowski, P. G., & Gorbunov, M. Y. 2016. The fate of photons absorbed by phytoplankton in the global ocean. *Science*, 351(6270), 264-267.
272. Harel, A., Häggblom, M.M., Falkowski, P.G. and Yee, N., 2016. Evolution of prokaryotic respiratory molybdoenzymes and the frequency of their genomic co-occurrence. *FEMS microbiology ecology*, 92(12), fiw187. DOI: 10.1093/femsec/fiw187.
273. Bhattacharya, D., Agrawal, S., Aranda, M., Baumgarten, S., Belcaid, M., Drake, J.L., Erwin, D., Foret, S., Gates, R.D., Gruber, D.F. and Kamel, B., 2016. Comparative genomics

- explains the evolutionary success of reef-forming corals. *eLife*, 5, p.e13288.
274. Mass, T., Putnam, H. M., Drake, J. L., Zelzion, E., Gates, R. D., Bhattacharya, D., & Falkowski, P. G. 2016. Temporal and spatial expression patterns of biomineralization proteins during early development in the stony coral *Pocillopora damicornis*. Proceedings of the Royal Society B-Biological Sciences, 283(1829), 10. doi: 10.1098/rspb.2016.0322
275. Jelen, B.I., Giovannelli, D. and Falkowski, P.G., 2016. The role of microbial electron transfer in the coevolution of the biosphere and geosphere. *Annual Review of Microbiology*, 70, pp.45-62.
276. Dinamarca, J., Levitan, O., Kumaraswamy, G.K., Lun, D.S. and Falkowski, P., 2017. Overexpression of a diacylglycerol acyltransferase gene in *Phaeodactylum tricorutum* directs carbon towards lipid biosynthesis. *Journal of Phycology*. 53(2), pp.405-414.
277. Bailleul, B., Park, J., Brown, C.M., Bidle, K.D., Lee, S.H. and Falkowski, P.G., 2017. Direct measurements of the light dependence of gross photosynthesis and oxygen consumption in the ocean. *Limnology and Oceanography*. 62(3), pp.1066-1079.
278. Park, J., Kuzminov, F.I., Bailleul, B., Yang, E.J., Lee, S., Falkowski, P.G. and Gorbunov, M.Y., 2017. Light availability rather than Fe controls the magnitude of massive phytoplankton bloom in the Amundsen Sea polynyas, Antarctica. *Limnology and Oceanography*.
279. Liu, W., Yee, N., Piotrowiak, P. and Falkowski, P.G., 2017, December. Photogeochemical reactions of manganese under anoxic conditions. In AGU Fall Meeting Abstracts.
280. Putnam, H.M., Adams, D.K., Zelzion, E., Wagner, N.E., Qiu, H., Mass, T., Falkowski, P.G., Gates, R.D. and Bhattacharya, D., 2017. Divergent evolutionary histories of DNA markers in a Hawaiian population of the coral *Montipora capitata*. *PeerJ*, 5, p.e3319.
281. Von Euw, S., Zhang, Q., Manichev, V., Murali, N., Gross, J., Feldman, L.C., Gustafsson, T., Flach, C., Mendelsohn, R. and Falkowski, P.G., 2017. Biological control of aragonite formation in stony corals. *Science*, 356(6341), pp.933-938.
282. Drake, J.L., Schaller, M., Mass, T., Godfrey, L., Fu, A., Sherrell, R., Rosenthal, Y. and Falkowski, P.G., 2017. Molecular and geochemical perspectives on the influence of CO<sub>2</sub> on calcification in coral cell cultures. *Limnology and Oceanography*. doi: 10.1002/lno.10617
283. Falkowski, P.G., Lin, H., and Gorbunov, M. 2017. What limits photosynthetic energy conversion efficiency in nature? Lessons from the oceans. *Phil. Trans. R. Soc. B*. 372(1730), p.20160376.
284. Kim, J., Brown, C.M., Kim, M.K., Burrows, E.H., Bach, S., Lun, D.S. and Falkowski, P.G., 2017. Effect of cell cycle arrest on intermediate metabolism in the marine diatom *Phaeodactylum tricorutum*. *Proceedings of the National Academy of Sciences*, 114(38), pp.E8007-E8016.
285. Moore, E.K., Jelen, B.I., Giovannelli, D., Raanan, H. and Falkowski, P.G., 2017. Metal availability and the expanding network of microbial metabolisms in the Archaean eon. *Nature Geoscience*, 10(9), pp.629-636.
286. Mass, T., Drake, J.L., Heddleston, J., and Falkowski, P.G., 2017. Nanoscale visualization of biomineral formation in coral proto-polyps. *Current Biology*. 27(20), pp.3191-3196.
287. Jelen, B., Giovannelli, D., Falkowski, P.G. and Vetriani, C., 2018. Elemental sulfur reduction in the deep-sea vent thermophile, *Thermovibrio ammonificans*. *Environmental Microbiology*. doi:10.1111/1462-2920.14280

288. Falkowski, P.G., 2018. Reverse Engineering Nature. Environmental microbiology.
289. Drake, J.L., Schaller, M.F., Mass, T., Godfrey, L., Fu, A., Sherrell, R.M., Rosenthal, Y. and Falkowski, P.G., 2018. Molecular and geochemical perspectives on the influence of CO<sub>2</sub> on calcification in coral cell cultures. *Limnology and Oceanography*, 63(1), pp.107-121.
290. Moore, E.K., Hao, J., Prabhu, A., Zhong, H., Jelen, B.I., Meyer, M., Hazen, R.M. and Falkowski, P.G., 2018. Geological and chemical factors that impacted the biological utilization of cobalt in the Archean eon. *Journal of Geophysical Research: Biogeosciences*, 123(3), pp.743-759
291. Raanan, H., Pike, D.H., Moore, E.K., Falkowski, P.G. and Nanda, V., 2018. Modular origins of biological electron transfer chains. *Proceedings of the National Academy of Sciences*, 115(6), 1280–1285. <https://doi.org/10.1073/pnas.1714225115>
292. Kim, J.D., Pike, D.H., Tyryshkin, A.M., Swapna, G.V.T., Raanan, H., Montelione, G.T., Nanda, V. and Falkowski, P.G., 2018. Minimal heterochiral de novo designed 4Fe-4S binding peptide capable of robust electron transfer. *Journal of the American Chemical Society*. 140(36), 11210–11213.

### Additional Publications

1. Falkowski, P.G. and S.O. Howe 1976. Preliminary report on the possible effects of the *Ceratium tripos* bloom in the New York Bight, March - July 1976. In *Anoxia on the Middle Atlantic Shelf during the Summer of 1976*, J.H. Sharpe, ed., IDOE Tech. Rep.
2. Falkowski, P.G. 1978. Anion-activated adenosine triphosphatases. In *Handbook of Phycological Methods: Physiological and Biochemical Methods*, J.A. Hellebust and J.S. Cragie, eds., pp. 255-261, Cambridge University Press.
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.
4. T.C. Malone, W.E. Esaias, and P.G. Falkowski. 1980. The effects of *Ceratium tripos* blooms on oxygen depletion in the New York Bight. NOAA Professional Paper 11, pp. 193-218.
5. Falkowski, P.G. 1980. Light-shade adaptation in marine phytoplankton. In *Primary Productivity in the Sea*, pp. 99-119, Plenum Press, New York.
6. Falkowski, P.G., Editor. 1980. *Primary Productivity in the Sea*. Plenum Press, New York, 522 pp.
7. Boynton, W.R., C.A. Hall, P.G. Falkowski, C.W. Keefe, and W.M. Kemp. 1983. Phytoplankton productivity in aquatic ecosystems. In *Encyclopedia Plant Physiol.*, Vol. II B, Plant Water Relationships, pp. 305-327, Springer-Verlag.
8. Falkowski, P.G. Enzymology of nitrogen assimilation. 1983. In *Nitrogen in the Marine Environment*, E.J. Carpenter and D. Capone, eds., pp. 839-868, Academic Press, New York.
9. Dubinsky, Z., P.G. Falkowski, and D. Scharf. 1985. Aspects of adaptation of hermatypic corals and their endosymbiotic zooxanthellae to light. In *Biology of the Red Sea*, J. Costlow, ed., AIBS.
10. Falkowski, P.G., P. Jokiell, and R. Kinzie. 1990. Irradiance and corals. In *Coral Reefs*, Vol. 7 in *Ecosystems of the World*, Z. Dubinsky, ed., pp. 89-107, Elsevier, Amsterdam.

11. Falkowski, P.G. 1988. Ocean productivity from space (News and Views). *Nature* 335: 205.
12. Falkowski, P.G., P. Jokieli, and R. Kinzie. 1990. Irradiance and corals. In *Coral Reefs*, Vol. 7 in *Ecosystems of the World*, Z. Dubinsky, ed., pp. 89-107, Elsevier, Amsterdam.
13. Falkowski, P.G. and L.M. Kirschner. 1990. Ocean biology and global climate. *The World & I*, pp. 284-291.
14. LaRoche, J. A. Mortain-Bertrand, J. Bennett, and P.G. Falkowski. 1990. Molecular regulation of LHC II apoproteins during photoadaptation in *Dunaliella tertiolecta*. *Proc. VII Intern. Photosyn. Congr.* 4: 357-360.
15. Falkowski, P.G. and Z. Kolber. 1990. Phytoplankton photosynthesis in the Atlantic Ocean as measured from a submersible pump and probe fluorometer *in situ*. In *Current Research in Photosynthesis IV*, M. Baltscheffsky, Editor, pp. 923-926, Kluwer, London.
16. Falkowski, P.G. and A. Woodhead (eds). 1992. *Primary Productivity and Biogeochemical Cycles in the Sea*. Plenum Press, New York. 550 pp.
17. Falkowski, P.G. 1992. A carbon budget for the northeast continental shelf ecosystem: Results of the Shelf Edge Exchange Process Studies. In *Food Chains, Yields, Models, and Management of Large Marine Ecosystems*, K. Sherman, L.M. Alexander, and B.D. Gold, Eds., pp. 35-48. Westview Press, Boulder, San Francisco, Oxford.
18. Falkowski, P.G., S. Demers, and L. Legendre. 1991. Concluding remarks: Promises and limitations of individual cell and particle analysis. *NATO ASI Series*, Vol. G27, Particle Analysis in Oceanography, S. Demers, Editor, Springer-Verlag, Berlin, Heidelberg, pp. 405-408.
19. Falkowski, P.G. 1992. Molecular ecology of phytoplankton photosynthesis. pp. 47-67 in *Primary Productivity and Biogeochemical Cycles in the Sea*, P. G. Falkowski and A.D. Woodhead, eds. Plenum Press, New York.
20. Falkowski, P.G. 1993. Phytoplankton photosynthesis in the ocean in relation to the global carbon cycle. *Proc. IXth Int. Photosynthesis Congress*, N. Murata, ed. Kluwer, Amsterdam.
21. Falkowski, P.G., R. Greene and Z. Kolber. 1994. Light utilization and photoinhibition of photosynthesis in marine phytoplankton. In *Photoinhibition of Photosynthesis: From molecular mechanisms to the field*. N. R. Baker and J. R. Bowyer, eds. Bios Scientific, Oxford. pp 407-432.
22. Falkowski, P.G. 1995. Towards Understanding the Molecular Ecology of Phytoplankton Photosynthesis. In *Molecular Ecology of Aquatic Microbes*, NATO ASI Series, Ed. I. Joint, Springer-Verlag, Heidelberg, pp. 17-38.
23. Berges, J.A., D.O. Charlebois, D.C. Mauzerall, and P.G. Falkowski. 1996. Effects of nitrogen deprivation on photochemical efficiency in three species of microalgae: A comparison of fluorescence and photoacoustic techniques. In *Proc. Xth International Photosyn. Cong.*, P. Mathis, ed., Montpellier.
24. Falkowski, P.G., M. Behrenfeld, and Z. Kolber. 1996. Variations in photochemical energy conversion efficiency in oceanic phytoplankton: Scaling from reaction centers to the global ocean. In *Proc. Xth International Photosyn. Cong.*, P. Mathis, ed., Montpellier.
25. La Roche, J., F. Partensky, and P.G. Falkowski. 1996. The major light-harvesting chlorophyll-binding protein of *Prochlorococcus marinus* is similar to CP43', a chlorophyll protein induced by non-depletion in cyanobacteria. In *Proc. Xth International Photosyn. Cong.*, P. Mathis, ed., Montpellier.
26. Polivka, T., J. Psencik, P. Kroh, D. Engst, O. Prasil, P.G. Falkowski, and J. Hala. 1996.

- Hole-burning study of Fe-limited and Fe-repleted cells of *Dunaliella tertiolecta*. In *Proc. Xth International Photosyn. Cong.*, P. Mathis, ed., Montpellier.
27. Prasil, O., Z. Kolber, J.A. Berry, and P.G. Falkowski. 1996. Plastoquinone redox regulation and feedback on the donor side of Photosystem II *in vivo*. In *Proc. Xth International Photosyn. Cong.*, P. Mathis, ed., Montpellier.
  28. Falkowski, P.G. and J. Raven. 1997. *Aquatic Photosynthesis*, Blackwell Scientific, Oxford (375pp).
  29. Durnford, D., O. Prasil, J-M Escoubas and P. G. Falkowski. 1998. Assessing the potential for chloroplast redox regulation of nuclear gene expression. *Method. Enzymol.* 297: 220-234.
  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.
  32. Dickey, T and PG Falkowski. 2002 Solar Energy and Its Biological-Physical Interactions In *The Sea*, ed. Allan Robinson. John Wiley & Sons, New York. Pp 401-440.
  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.
  35. Falkowski, P.G., R. Geider, and J.A. Raven. 2004. The role of aquatic photosynthesis in solar energy conversion: A geoevolutionary perspective. In. *Solar Energy Conversion* [Eds.] M. Archer and J Barber. Imperial College Press, London.
  36. Laws, E.A. and others. 2002. Photosynthesis and primary productivity in marine ecosystems: Practical aspects and application of techniques. JGOFS Special Report No. Bergen, Norway. 93 pp.
  37. Falkowski P.G., E.A. Laws, R.T. Barber, and J.W. Murray. 2003. Phytoplankton and their role in Primary, New, and Export Production. (Chapter 4) In *Ocean Biogeochemistry: The Role of the Ocean Carbon Cycle in Global Change*. [Ed] MJR Fasham. Global Change – The IGBP Series.
  38. Falkowski, P.G. 2002. The Ocean's Invisible Forest. *Scientific American* 287: 38-45.
  39. Falkowski, P.G. 2003. The biogeochemistry of primary productivity in the sea. In *Treatise of Geochemistry*. [Ed] W.H. Schlesinger. Elsevier, pp185-213.
  40. Falkowski PG, Koblížek M, Gorbunov M and Kolber Z (2004) Development and Application of fluorescence techniques in Marine Ecosystems. Chlorophyll fluorescence: A signature of Photosynthesis. Eds. Papageorgiou GC and Govindjee. Series “*Advances in Photosynthesis*” Vol. 19th, Series editor: Govindjee, Springer. pp. 757-778.
  41. Falkowski, P.G. and D. Tchernov. 2003. Human footprint on the ecological landscape. In. *Earth System Analysis for Sustainability*, ed, J. Schellnhuber. Springer-Verlag, Berlin.
  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* (2<sup>nd</sup> 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.
  49. Katz, M.E., K. Fennel, P.G. Falkowski. 2007. Geochemical and biological consequences of phytoplankton evolution. *In The Evolution of Aquatic Photoautotrophs*, P.G. Falkowski and A.H. Knoll (eds). Academic Press. New York, 456 pp.
  50. Buesseler, K.O., S.C. Doney, D.M. Karl, P.W. Boyd, K. Caldeira, F. Chai, K.H. Coale, H.J.W. de Baar, P.G. Falkowski, K.S. Johnson, R.S. Lampitt, A.F. Michaels, S.W.A. Naqvi, V. Smetacek, S. Takeda, A.J. Watson. 2008. Environment: Ocean Iron Fertilization--Moving Forward in a Sea of Uncertainty. *Science* **319**: 162, doi: 10.1126/science.1154305 (in Policy Forum).
  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* (2<sup>nd</sup> edition). D.G. Capone, D.A. Bronk, M.R. Mulholland and E.J. Carpenter (eds). Elsevier, Inc. Pp.
  52. Falkowski, P. 2009. The marine carbon cycle. *In The Princeton Guide to Ecology*. S. Levin (ed). Princeton University Press. Princeton, Pp. 358-366.
  53. Falkowski, P. 2009. The once and future ocean. *Oceanography* **22**: 246-251.
  54. Falkowski PG and RM Goodman. 2009. Future Energy Institutes. *Science* **117**:655.
  55. Dubinsky, Z. and P.G. Falkowski. 2011. Light as a Source of Information and Energy in Zooxanthellate Corals. *In Coral Reefs: An Ecosystem in Transition*. Dubinsky, Zvy; Stambler, Noga (Eds.) Springer. New York, pp. 107-118.
  56. Eisenstein, M. and P. Falkowski. 2012. Q&A Paul Falkowski A slow-motion crisis. *Nature* **483**(7387): S21-S21.
  57. Lutz, R. A. and P. G. Falkowski. 2012. A Dive to Challenger Deep. *Science* **336**(6079): 301-302.
  58. Falkowski, P.G., Algeo, T., Codispoti, L., Deutsch, C., Emerson, S., Hales, B., Huey, R. B., Jenkins, W. J., Kump, L. R., Levin, L. A., Lyons, T. W., Nelson, N. B., Schofield, O., Summons, R., Talley, L. D., Thomas, E., Whitney, F., Pilcherm C. B. 2011. Ocean Deoxygenation: Past, Present, and Future. *EOS, Transactions American Geophysical Union*. **92**(46): 409-411.
  59. Falkowski, P.G. 2012. Le mouvement vital des océans. *In L'Homme et La Mer*. Ed. Y. Arthus-Bertrand et Brian Skerry (in French). Foundation GoodPlanet. Paris (pp 48-55).
  60. Falkowski, P. G., & Freeman, K. H. (Eds.) 2014. Volume 12 Organic Geochemistry *In H. D.*

Holland & K. K. Turekian (Eds.), *Treatise on Geochemistry (Second Edition)* (pp. xxiii-xxiv). Oxford: Elsevier.

61. Falkowski, P.G., 2015. *Life's Engines: How Microbes Made Earth and Habitable Planet*, Princeton University 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.
6. Falkowski, PG. 2015. Taking the Oxygen Out of the Room. Huffington Post Science 20 August.
7. Falkowski, PG. 2015. Two Solutions That Cut Down on Fossil Fuels. Huffington Post Science 27 August.

### Radio and Television

NPR radio- Leonard Lopate Show, NPR news with Richard Harris, NHK television, National Geographic Television.

### Invited Lectures and Meetings

- 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/AG Meeting - 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      Sagin Lecture - AGU  
Plenary Lecture Ocean Sciences  
University of Tokyo, Japan  
University of Nagoya, Japan  
University of Kyoto, Japan  
University of Paris, France  
St. Andrews University, UK  
University of Dundee, UK
- 2009      Revelle Lecture - Washington DC  
Yale University  
Scripps Institute of Oceanography  
Marine Biological Laboratory  
Lamont Doherty Earth Observatory  
CNRS - Roscoff, France  
GRC - Marine Microbial Ecology, Italy  
SGM Spring Conference - EICC, Edinburgh, UK
- 2010      Ecology Prize Lecture, Germany  
University of Pennsylvania  
CNRS - Paris  
Princeton University  
NASA Ames Conference  
Canadian Society for Ecology and Evolution Conference – Quebec, Canada
- 2011      GRC - Metals in Biology  
Harvard University  
Massachusetts Institute of Technology  
Keystone Symposia, Singapore, China  
International Conference on Science – STHESCA, University of Krakow, Poland  
Brazilian Congress of Marine Biology, Natal, Brazil  
Aharon Katzir-Katchalski 30<sup>th</sup> Annual Lecture - Weizmann Institute of  
Science, Israel
- 2012      Wiese Lecture - University of Southern Alabama  
Royal Society, London, UK  
Chinese Academy of Sciences, Beijing, China  
USP Conference - University of Sao Paulo, Brazil
- 2013      GRC - Geobiology, University of Southern California  
City College of New York  
Santa Fee Institute  
University of Rhode Island  
Cambridge University, Clare College, Cambridge, UK  
Oxford University, Oxford, UK

European Science Foundation  
 Warsaw Technical University  
 University College of London  
 Wildlife Conservation Society  
 Algae Biomass Summit  
 Schmidt Ocean Research Symposium

- 2014 Institut de Ciències del Mar (ICM), Barcelona, Spain  
 Comparative genomic approaches to understanding the architecture of metazoans,  
 Coral Workshop, Rutgers University  
 University of Michigan  
 Kellogg Biological Station, Michigan State University  
 American Museum of Natural History  
 Monterey Bay Aquarium Research Institute (MBARI)  
 Earth Life Science Institute, 2<sup>nd</sup> ELSI International Symposium, Tokyo, Japan  
 Sorbonne University, Paris, France  
 CNRS - Roscoff, France  
 International Society for Applied Phycology (ISAP), Sydney, Australia  
 GRC – Biomineralization, Colby-Sawyer College  
 Massachusetts Institute of Technology  
 Carnegie Institute of Washington  
 Geological Society of America, Vancouver, Canada  
 Utrecht University, Amsterdam, Netherlands  
 American Geophysical Union, San Francisco
- 2015 Second Xiamen Symposium on Marine Environmental Sciences, China  
 Eastern Photosynthesis Conference, Woods Hole  
 University of Montana  
 McMaster University, Canada  
 CNRS - Roscoff, France  
 La Sorbonne, University Marie and Pierre Curie  
 CNRS - Ville de Franche-Sur-Mer Oceanographic Laboratory, France  
 Oceanographic Institute, Monaco  
 Carnegie Institute of Washington  
 UNESCO World Oceans Day, France  
 Positive Economy Forum, Le Havre, France  
 GSA Annual Meeting 2015, Baltimore
- 2016 Harvard University  
 AGU - ASM Colloquium, American Geophysical Union, Washington  
 Institute for Advanced Study, Princeton  
 Eastern Photosynthesis Conference, Woods Hole  
 Ocean and Evolution of Earths Biogeochemical Cycles Symposium, Rutgers  
 Tongji University, China  
 ASM Microbe 2016, Boston

Leon H. Charney School of Marine Sciences, University of Haifa, Israel  
 Global Co-Evolution of the Ocean Environment and its Ecology Workshop,  
 University of Bristol, England  
 17<sup>th</sup> International Congress on Photosynthesis Research, Maastricht, Netherlands  
 IMBC2016 Conference, Baltimore  
 Oceans World Meeting, Woods Hole  
 GSA, Denver  
 The Royal Society, London  
 Goddard Space Flight Center, Maryland  
 2016 Symposium on Biomaterials, Islen, NJ  
 Frontiers in Genomics, Nation Autonomous University of Mexico (UNAM),  
 Mexico City

- 2017 Antarctic Cruise, R/V ARSV Laurence M. Gould  
 QuEBS 2017, Workshop on Quantum Effects in Biological Systems, Jerusalem  
 NSF Geosciences AC-GEO, Washington D.C.  
 NASA Europa Lander Mission Concept Town Hall, Mesa, Arizona  
 The Rockefeller Foundation, The Bellagio Center, Writing Residency, Italy  
 Goldschmidt Conference 2017, Paris, France  
 BergamoScienza Festival 2017, Bergamo, Italy  
 C3 2017 Colloquium Aquafluo II, Sydney, Australia
- 2018 ELSI International Symposium 2018, Tokyo, Japan  
 GRC - Metals in Biology, Ventura, California  
 Harvard University  
 Columbia University

### 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.Sc. 2008  
 G. Robbins - Rutgers University, M.Sc. 2010  
 C. Yan - Rutgers University, M.Sc. 2012  
 J. D. Kim - Rutgers University, Ph.D. 2013  
 D. Lyons - Rutgers University, M Sc. 2014  
 J. Harrold - Rutgers University, Ph.D. 2014  
 J. Drake - Rutgers University, Ph.D. 2015  
 J. Kim - Rutgers University, Ph.D. 2016  
 J. Casey - University of Hawaii, Ph.D. 2016  
 B. Jelen - Rutgers University, Ph.D. (in progress)  
 A. Agarwal - Rutgers University, Ph.D. (in progress)  
 W. Liu - Rutgers University, Ph.D. (in progress)  
 Y. Sherman - Rutgers University, Ph.D. (in progress)  
 K. Yu Cheong - Rutgers University, Ph.D. (in progress)

#### **Ph.D. Advisor for**

Elizabeth Cospers - 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, Ph. 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  
 Dr. Moshe Ben-Tzion, Bar-Ilan University, Israel  
 Dr. Sinjae Yoo, Korean Ocean Research and Development Institute, Inchon, Korea  
 Dr. Frederico Pereira Brandini, Oceanographic Institute of São Paulo University, Brazil  
 Dr. Qiang Hao, State Key laboratory of Satellite Ocean Environment Dynamics (SOED),  
 China

### **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 - deceased)  
 Dr. Julie LaRoche (Professor, Dalhousie University)  
 Dr. Anne Mortain-Bertrand (Professor, University of Bordeaux)  
 Dr. Paul Kemp (Professor, University of Hawaii)  
 Dr. Richard Greene (Research Scientist, EPA)  
 Dr. Jean-Michel Escoubas (Research Scientist, CNRS)  
 Dr. Ilya Vasil'ev (Senior Scientist, Lasertech -deceased)  
 Dr. John Berges (Professor, University of Wisconsin, Milwaukee)  
 Dr. Michael Behrenfeld (Research Scientist, Goddard Space Flight Center; Professor  
 Oregon State)  
 Dr. Ondrej Prasil (Director of Research, Trebon, Czech Republic)  
 Dr. Juan Vergara (Associate Professor, University of Cadiz)  
 Dr. Dion Durnford (Professor, University of New Brunswick, Canada)  
 Dr. Maxim Gorbunov (Research Professor, Rutgers University)  
 Dr. Ilana Berman-Frank (Professor, Bar Ilan University)  
 Dr. Yibu Chen (Information Technology Specialist, University of Southern California)  
 Dr. Debora Iglesias-Rodriguez (Professor, University of California, Santa Barbara)

Dr. Yorum Gerchman (Associate Professor, Haifa 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 (Assistant Professor, University Montpellier)  
 Dr. Kay Bidle (Professor, Rutgers University)  
 Dr. Elena Litchman (Associate Professor, University of Michigan)  
 Dr. Andrew Irwin (Associate Professor, Mount Alison College)  
 Dr. Danny Tchernov (Professor, University of Haifa)  
 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 (Professor, Georgia Institute of Technology)  
 Dr. Allen Milligan (Associate Research Professor, Oregon State University)  
 Dr. Diana Nemergut (Associate Professor, deceased)  
 Dr. Huiyan Yang (Assistant Professor, University of Texas at El Paso)  
 Dr. Yael Helman (Principal Investigator, The Hebrew University of Jerusalem)  
 Dr. Pedro Cermeno (Senior Research Scientist, Instituto de Ciencias del Mar, Universidad de Vigo)  
 Dr. Tracy Quan (Associate Professor, Oklahoma State University)  
 Dr. Assaf Vardi (Professor, Weizmann Institute of Science)  
 Dr. Matthew Johnson (Associate Scientist, Woods Hole Oceanographic Institute)  
 Dr. Michele Vitadello (Assistant Professor Medgar Evers College, NYC)  
 Dr. Miguel Frada (Senior Lecturer, Hebrew University)  
 Dr. Eric Hajanirana Andrianasolo (Research Associate, Rutgers University)  
 Dr. Stefan Senn (Post-doctoral Associate, University of Salzburg)  
 Dr. Tali Mass (Assistant Professor, Haifa University)  
 Dr. Jorge Dinamarca (Research Scientist, Louisiana State University)  
 Dr. Benjamin Bailleul (Research Associate, IBPC Sorbonne University)  
 Dr. Arye Harel (Research Scientist, Volcani Institute)  
 Dr. Hanzhi Lin (Post-doctoral Associate, University of Maryland Center for Environmental Science)  
 Dr. Fedor Kuzminov (Scientist II, Synthetic Genomics)  
 Dr. Orly Levitan (Assistant Research Professor, Rutgers University)  
 Dr. Stanilas Von Euw (Trinity College, Dublin)  
 Dr. Elisha Moore (AAAS Fellow, USDA)  
 Dr. John Kim (Technical Staff, Bell Labs)  
 Dr. Hagai Raanan (present post-doc)  
 Dr. Andrew Mutter (present post-doc)  
 Dr. Manjula Mummadisetti (present post-doc)

### **Consultant**

Algenol Biofuels  
 Reliance Industries



Satlantic  
Sapphire Energy

### Patents

- Pump and probe fluorometer (with Z. Kolber). U.S. Patent No. 4,942,303 (July 17, 1990).
- Fast repetition rate fluorometer and method for measuring fluorescence and photosynthetic parameters (with Z. Kolber) U.S. Patent No. 5,426,306 (June 20, 1995).
- Fast repetition rate (FRR) flasher (with Z. Kolber) U.S. Patent No. 5,602,446 (February 11, 1997)
- Multiple protocol fluorometer and method (with Z. S. Kolber) U.S. Patent No. 6,121,053 (September 19, 2000).
- McFP encoding nucleic acids, polypeptides, antibodies and methods and use thereof. (with Y. Sun, M. Gorbunov, K. Wyman, Y. Chen) U.S. Patent No. 6,933, 375 (August 23, 2005).
- McFP encoding nucleic acids, polypeptides, antibodies and methods and use thereof. (with Y. Sun) U.S. Patent No. 7,067,645 (June 27, 2006)
- McFP encoding nucleic acids, polypeptides, antibodies and methods and use thereof. (with Y. Sun) U.S. Patent No. 7,091,318 (August 15, 2006)
- Fluorescent protein from *Montastraea cavernosa* (with Y. Sun, M. Gorbunov, K. Wyman, Y. Chen) U.S. Patent No. 7,358,336 (April 15, 2008)
- Compositions and methods for treating cancer (with E.H. Andrianasolo, L. Haramaty, E. White, R. Lutz) U.S. Patent No. 8,183,395 (May 22, 2012)
- Compositions and Methods for Enhancing Lipid Production in Marine Microalgae (with Frada, M., Wyman, K., & Gibson, J.) U.S. Patent No. 0282676 A1 (November 8, 2012).
- Compositions and methods for enhancing lipid production in microalgae via induction of cell cycle arrest (with J. Kim) WO 2013028952 A3. (May 8, 2014).
- Chemically Modified Graphene (with M. Vittadello et al.). U.S. Patent No. 20,140,154,770. (June 5, 2014).
- Chemically Modified Graphene (with M. Vittadello et al.). US Patent App. 15/155,695 (November 3, 2016)
- Chemically Modified Graphene (with M. Vittadello et al) U.S. Patent No. 9,822,151. (November 21, 2017)