

JOHN B. WATERBURY
Scientist Emeritus
Biology Department
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Professional Preparation

B.A., University of Vermont, 1965
M.A., University of California, Berkeley, 1971
Ph.D., University of California, Berkeley, 1976

Appointments

Research Assistant, Woods Hole Oceanographic Institution, 1965-1967
Research Associate, Woods Hole Oceanographic Institution, 1967-1969
Graduate Student, Department of Bacteriology and Immunology, University of California, Berkeley, 1969-1976; Thesis Title: "Purification, developmental patterns and properties of some fresh water and marine cyanobacteria belonging to the orders Chamaesiphonales and Pleurocapsales, <https://hdl.handle.net/1912/27820> Thesis Advisor: Roger Y. Stanier
Visiting Investigator, Pasteur Institute, Paris, France, 1972-1975
Visiting Investigator, Woods Hole Oceanographic Institution, 1975-1976
Postdoctoral Investigator, Woods Hole Oceanographic Institution, 1976-1978
Assistant Scientist, Woods Hole Oceanographic Institution, 1978-1982
Associate Scientist, Woods Hole Oceanographic Institution, 1982-2005
Senior Scientist, Woods Hole Oceanographic Institution, 2005-2007
Scientist Emeritus, Woods Hole Oceanographic Institution, 2007

Honors, Awards, Fellowships

Elected Fellow of the American Association for the Advancement of Science, 1994
Elected Fellow of the American Academy of Microbiology, 2003
Recipient of the 2012 Gilbert Morgan Smith Medal from the National Academy of Sciences

Publications

1. Remsen, C. C., Watson, S. W., **Waterbury, J. B.**, Trüper, H. G. 1968. Fine Structure of *Ectothiorhodospira mobilis* Pelsh. *Journal of Bacteriology* 95(6), 2374-2392. <https://doi.org/10.1128/jb.95.6.2374-2392.1968>
2. Watson, S. W., **Waterbury, J. B.** (1969). The Sterile Hot Brines of the Red Sea. In: Degens, E.T., Ross, D.A. (eds) Hot Brines and Recent Heavy Metal Deposits in the Red Sea. *Springer, Berlin, Heidelberg*. https://doi.org/10.1007/978-3-662-28603-6_27
3. Watson, S. W., **Waterbury, J. B.** Characteristics of two marine nitrite oxidizing bacteria, *Nitrospina gracilis* nov. gen. nov. sp. and *Nitrococcus mobilis* nov. gen. nov. sp. *Archives of Microbiology*. 77, 203–230 (1971). <https://doi.org/10.1007/BF00408114>

4. Rippka, R., **Waterbury, J. B.** & Cohen-Bazire, G. A cyanobacterium which lacks thylakoids. *Archives of Microbiology*. 100, 419–436 (1974).
<https://doi.org/10.1007/BF00446333>
5. Krumbein, W. E., R. Rippka and **J. B. Waterbury**. Schematische bakteriologische Gliederung der Cyanophyten im Vergleich zur Phykologischen. pp. 107-130. In: W. E. Krumbein (ed.), *Cyanobakterien - Bakterien oder Algen? 1. Oldenburger Symposium über Cyanobakterien, 1977 - Taxonomische Stellung und Ökologie – ISBN 3-8142-000-4* (1977).
6. **Waterbury, J.**, Waterbury, J., Stanier, R. Two unicellular cyanobacteria which reproduce by budding. *Archives of Microbiology*. 115, 249–257 (1977).
<https://doi.org/10.1007/BF00446449>
7. Rippka, R. R., **Waterbury, J. B.** The synthesis of nitrogenase by non-heterocystous cyanobacteria, *FEMS Microbiology Letters*, 2(2), August 1977, Pages 83–86,
<https://doi.org/10.1111/j.1574-6968.1977.tb00913.x>
8. **Waterbury, J. B.**, Stanier, R. Y. 1978. Patterns of growth and development in pleurocapsalean cyanobacteria. *Microbiological Reviews*, 42(1), 2-44,
<https://doi.org/10.1128/mr.42.1.2-44.1978>
9. **Waterbury, J. B.**, Watson, S. W., Guillard, R. R. L., and Brand, L. E. Widespread occurrence of a unicellular, marine, planktonic, cyanobacterium. *Nature* 277, 293–294 (1979). <https://doi.org/10.1038/277293a0>
10. Herdman, M., Janvier, M., **Waterbury, J. B.**, Rippka, R., Stanier, R. Y., & Mandel, M. (1979). Deoxyribonucleic Acid Base Composition of Cyanobacteria. In *Microbiology* (Vol. 111, Issue 1, pp. 63–71). *Microbiology Society*.
<https://doi.org/10.1099/00221287-111-1-63>
11. Rippka, R., Deruelles, J., **Waterbury, J. B.**, Herdman, M., & Stanier, R. Y. (1979). Generic Assignments, Strain Histories and Properties of Pure Cultures of Cyanobacteria. In *Microbiology* (Vol. 111, Issue 1, pp. 1–61). *Microbiology Society*.
<https://doi.org/10.1099/00221287-111-1-1>
12. **Waterbury, J. B.** Developmental patterns in Pleurocapsalean Cyanobacteria. In: J. H. Parish (ed.), *The Developmental Biology of Prokaryotes*. Blackwell Scientific Publications, Ltd. Oxford, pp. 203-226 (1979).
13. Rippka, R., **Waterbury, J. B.**, Stanier, R. Y. (1981). Isolation and Purification of Cyanobacteria: Some General Principles. In: Starr, M.P., Stolp, H., Trüper, H.G., Balows, A., Schlegel, H.G. (eds) *The Prokaryotes*. Springer, Berlin, Heidelberg, pp. 212-220. https://doi.org/10.1007/978-3-662-13187-9_8

14. Rippka, R., **Waterbury, J. B.**, Stanier, R. Y. (1981). Provisional Generic Assignments for Cyanobacteria in Pure Culture. In: Starr, M.P., Stolp, H., Trüper, H.G., Balows, A., Schlegel, H.G. (eds) *The Prokaryotes*. Springer, Berlin, Heidelberg, pp. 247-256. https://doi.org/10.1007/978-3-662-13187-9_12
15. **Waterbury, J. B.**, Stanier, R.Y. (1981). Isolation and Growth of Cyanobacteria from Marine and Hypersaline Environments. In: Starr, M.P., Stolp, H., Trüper, H.G., Balows, A., Schlegel, H.G. (eds) *The Prokaryotes*. Springer, Berlin, Heidelberg, pp. 221-223. https://doi.org/10.1007/978-3-662-13187-9_9
16. Watson, S. W., Valois, F. W., **Waterbury, J. B.** (1981). The Family Nitrobacteraceae. In: Starr, M.P., Stolp, H., Trüper, H.G., Balows, A., Schlegel, H.G. (eds) *The Prokaryotes*. Springer, Berlin, Heidelberg, pp. 1005-1022. https://doi.org/10.1007/978-3-662-13187-9_80
17. Cavanaugh, C. M., Gardiner, S. L., Jones, M. L., Jannasch, H. W., and **Waterbury, J. B.** Prokaryotic Cells in the Hydrothermal Vent Tube Worm *Riftia pachyptila* Jones: Possible Chemoautotrophic Symbionts. *Science*, 213, 340-342 (1981). DOI: [10.1126/science.213.4505.340](https://doi.org/10.1126/science.213.4505.340)
18. Nelson, D. C., **Waterbury, J. B.**, and Jannasch, H. W. Nitrogen fixation and nitrate utilization by marine and freshwater *Beggiatoa*. *Archives of Microbiology*. 133, 172–177 (1982). <https://doi.org/10.1007/BF00414997>
19. **Waterbury, J. B.**, Calloway, C. B. and Turner, R. D. A Cellulolytic Nitrogen-Fixing Bacterium Cultured from the Gland of Deshayes in Shipworms (Bivalvia: Teredinidae). *Science* 221, 1401-1403 (1983). DOI: [10.1126/science.221.4618.1401](https://doi.org/10.1126/science.221.4618.1401)
20. Ong, L. J., Glazer, A. N., and **Waterbury, J. B.** An Unusual Phycoerythrin from a Marine Cyanobacterium. *Science* 224, 80-83 (1984). DOI: [10.1126/science.224.4644.80](https://doi.org/10.1126/science.224.4644.80)
21. Cuhel R. L., **Waterbury J. B.**, (1984), Biochemical composition and short term nutrient incorporation patterns in a unicellular marine cyanobacterium, *Synechococcus* (WH7803), *Limnology and Oceanography*, 2, doi: [10.4319/lo.1984.29.2.0370](https://doi.org/10.4319/lo.1984.29.2.0370).
22. Gibson, J., Pfennig, N., and **Waterbury, J. B.** *Chloroherpeton thalassium* gen. nov. et spec. nov., a non-filamentous, flexing and gliding green sulfur bacterium.. *Archives of Microbiology*, 138, 96–101 (1984). <https://doi.org/10.1007/BF00413007>
23. Nelson, D. C., **Waterbury, J. B.**, & Jannasch, H. W. (1984). DNA base composition and genome size of the prokaryotic symbiont in *Riftia pachyptila* (Pogonophora). *FEMS Microbiology Letters*, 24(2), 267–271.

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26. Watson, S. W., Bock, E., F. Valois, F. W., **Waterbury, J. B.**, and Schlosser, U., *Nitrospira marina* gen. nov. sp. nov.: a chemolithotrophic nitrite-oxidizing bacterium. *Archives of Microbiology*. 144, 1–7 (1986). <https://doi.org/10.1007/BF00454947>
27. Pichinoty, F., **Waterbury, J. B.**, Mandel, M., & Asselineau, J. (1986). *Bacillus gordonae* sp.nov., une nouvelle espèce appartenant au second groupe morphologique, dégradant divers composés aromatiques. *Annales de l'Institut Pasteur / Microbiologie*, 137(1, Supplement A), 65–78. [https://doi.org/10.1016/S0769-2609\(86\)80006-0](https://doi.org/10.1016/S0769-2609(86)80006-0)
28. **Waterbury, J. B.**, Watson, S. W., Valois, F. W., & Franks, D. G. (1986). Biological and ecological characterization of the marine unicellular cyanobacterium *Synechococcus*. In T. Platt & W. K. W. Li (Eds.), *Canadian Bulletin of Fisheries and Aquatic Sciences Photosynthetic picoplankton* (Vol. 214, pp. 71–120). <https://publications.gc.ca/pub?id=9.952113&sl=0>
29. Willey, J. M., **Waterbury, J. B.**, Greenberg, E. P. 1987. Sodium-coupled motility in a swimming cyanobacterium. *Journal of Bacteriology* 169(8), 3429-3434. <https://doi.org/10.1128/jb.169.8.3429-3434.1987>
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31. **Waterbury, J. B.**, & Willey, J. M. (1988). [6] Isolation and growth of marine planktonic cyanobacteria. In *Cyanobacteria* (Vol. 167, pp. 100–105). Academic Press. [https://doi.org/10.1016/0076-6879\(88\)67009-1](https://doi.org/10.1016/0076-6879(88)67009-1)
32. Castenholz, R. and **Waterbury, J. B.** Introduction to Cyanobacteria. In: N. R. Krieg and J. G. Holt (eds.), *Bergey's Manual of Systematic Bacteriology*, Vol. 3, pp. 1710-1728. Williams and Wilkens (1989).
33. **Waterbury, J. B.** The order Pleurocapsales. In: N. R. Krieg and J. G. Holt (eds.), *Bergey's Manual of Systematic Bacteriology*, Vol. 3, pp. 1746-1770. Williams and Wilkens (1989).

34. **Waterbury, J. B.** and R. Rippka. The order Chroococcales. In: N. R. Krieg and J. B. Holt (eds.), *Bergey's Manual of Systematic Bacteriology*, Vol. 3, pp. 1728-1746. Williams and Wilkens (1989).
35. Willey, J. M., **Waterbury, J. B.** 1989. Chemotaxis toward Nitrogenous Compounds by Swimming Strains of Marine *Synechococcus* spp. *Applied and Environmental Microbiology*. 55(8), 1888-1894. <https://doi.org/10.1128/aem.55.8.1888-1894.1989>
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37. Caron, D. A., Lim, E. L., Miceli, G., **Waterbury, J. B.** and Valois, F. W. Grazing of chroococcoid cyanobacteria in laboratory cultures and a coastal plankton community: relative importance of cyanobacterial and bacterial biomass to the diets of protozoa. *Marine Ecology Progress Series*. 76(3), 205-217. (1991). <https://doi.org/10.3354/meps076205>
38. **Waterbury, J. B.** The Cyanobacteria: Isolation, Purification and Identification. In: A. Balows, M. Dworkin, H. G. Schlegel and H. Trüper (eds.), *The Prokaryotes* 2nd Edition. *Springer-Verlag, Berlin*, pp. 2058-2078 (1991).
39. Chisholm, S. W., Frankel, S. L., Goericke, R., Olson, R. J., Palenik, B., **Waterbury, J. B.**, West-Johnsrud, L., and Zettler, E. R. *Prochlorococcus marinus* nov. gen. nov. sp.: an oxyphototrophic marine prokaryote containing divinyl chlorophyll *a* and *b*. *Applied and Environmental Microbiology*. 157, 297-300 (1992). <https://doi.org/10.1007/BF00245165>
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41. Gallager, S. M., **Waterbury, J. B.**, & Stoecker, D. K. Efficient grazing and utilization of the marine cyanobacterium *Synechococcus* sp. by larvae of the bivalve *Mercenaria mercenaria* . *Marine Biology*. 119, 251-259 (1994). <https://doi.org/10.1007/BF0034956>
42. Dunlap, P. V., Kita-Tsukamoto, K., **Waterbury, J. B.**, and Callahan, S. M. Isolation and characterization of a visibly luminous variant of *Vibrio fischeri* strain ES114 from the sepiolid squid *Euprymna scolopes*. *Applied and Environmental Microbiology*. 164, 194-202 (1995). <https://doi.org/10.1007/BF02529971>

43. Urbach, E., Scanlan, D. J., Distel, D. L., **Waterbury, J. B.**, and Chisholm, S. W. Rapid Diversification of Marine Picophytoplankton with Dissimilar Light-Harvesting Structures Inferred from Sequences of *Prochlorococcus* and *Synechococcus* (Cyanobacteria). *Journal of Molecular Evolution*. 46, 188–201 (1998).
<https://doi.org/10.1007/PL00006294>
44. Zehr, J. P., **Waterbury, J. B.**, Turner, P. J., Montoya, J. P., Omoregie, E., Steward, G. F., Hansen, A., and Karl, D. M. Unicellular cyanobacteria fix N₂ in the subtropical North Pacific Ocean. *Nature*. 412, 635–638 (2001).
<https://doi.org/10.1038/35088063>
45. Herdman, M., Castenholz, R.W., Itean, I., **Waterbury, J.B.**, and Rippka, R. The Cyanobacteria: Subsection 1 (Formerly Chroococcales Wettstein 1924, emend. Rippka, Deruelles, Waterbury. Herdman and Stanier 1979) In D.R. Boone and R. W. Castenholz (eds.) *Bergey's Manual of Systematic Bacteriology* Springer New York pgs 493-514. (2001).
46. Rippka, R., **Waterbury, J. B.**, Herdman, M., and Castenholz, R. W. The Cyanobacteria: Subsection 2 (formerly Pleurocapsales Geitler 1925, emend. Waterbury and Stanier 1978) pgs. 514-539. (2001).
47. Lugomela, C., Bergman, B., & **Waterbury, J.** (2001). Cyanobacterial diversity and nitrogen fixation in coastal areas around Zanzibar, Tanzania. *Algological Studies/Archiv Für Hydrobiologie, Supplement Volumes, 103*, 95–115.
https://doi.org/10.1127/algol_stud/103/2001/95
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55. Sullivan, M., **Waterbury, J.** & Chisholm, S. Cyanophages infecting the oceanic cyanobacterium *Prochlorococcus*. *Nature* 424, 1047–1051 (2003). <https://doi.org/10.1038/nature01929>
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Whitman). <https://doi.org/10.1002/9781118960608.gbm00410>

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