

**JOHN B. WATERBURY**  
Scientist Emeritus  
Biology Department  
Woods Hole Oceanographic Institution

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Birth: 16 July 1942

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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." 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., S. W. Watson, **J. B. Waterbury** and H. G. Trüper. Fine structure of *Ectothiorhodospira mobilis* Pelsh. *J. Bact.* 95: 2374-2392 (1968).
2. Watson, S. W. and **J. B. Waterbury**. The Sterile Hot Brines of the Red Sea. In: E. T. Degens and D. A. Ross (eds.), *Hot Brines and Recent Heavy Metal Deposits in the Red Sea*. Springer-Verlag, New York (1969).
3. Watson, S. W. and **J. B. Waterbury**. Characteristics of two marine nitrite oxidizing bacteria, *Nitrospina gracilis* nov. gen. nov. sp. and *Nitrococcus mobilis* nov. gen. nov. sp. *Arch. Mikrobiol.* 77: 203-230 (1971).

4. Rippka, R., **J.B. Waterbury** and G. Cohen-Bazire. A cyanobacterium which lacks thylakoids. *Arch. Mikrobiol.* 100: 419-436 (1974).
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.** and R. Y. Stanier. Two unicellular cyanobacteria which reproduce by budding. *Arch. Mikrobiol.* 115: 249-257 (1977).
7. Rippka, R. and **J. B. Waterbury**. The synthesis of nitrogenase by non-heterocystous cyanobacteria. *FEMS. Microbiology Letters* 2: 83-86 (1977).
8. **Waterbury, J.** and R. Y. Stanier. Patterns of growth and development in pleurocapsalean cyanobacteria. *Microbiol. Rev.* 42: 2-44 (1978).
9. **Waterbury, J. B.**, S. W. Watson, R. R. L. Guillard and L. E. Brand. Widespread occurrence of a unicellular, marine, planktonic cyanobacterium. *Nature* 277: 293-294 (1979).
10. Herdman, M., M. Janvier, **J. B. Waterbury**, R. Rippka, R. Y. Stanier and M. Mandel. Deoxyribonucleic acid base composition of cyanobacteria. *J. Gen. Microbiol.* 111: 63-71 (1979).
11. Rippka, R., J. Deruelles, **J. B. Waterbury**, M. Herdman and R. Y. Stanier. Generic assignments, strain histories and properties of pure cultures of cyanobacteria. *J. Gen. Microbiol.* 111: 1-61 (1979).
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., **J. B. Waterbury** and R. Y. Stanier. Isolation and purification of cyanobacteria: Some general principles. In: M. P. Starr, H. Stolp, H. G. Trüper, A. Balows and H. G. Schlegel (eds.), *The Prokaryotes*. Springer Verlag, pp. 212-220 (1981).
14. Rippka, R., **J. B. Waterbury** and R. Y. Stanier. Provisional generic assignments for cyanobacteria. In: M. P. Starr, H. Stolp, H. G. Trüper, A. Balows and H. G. Schlegel (eds.), *The Prokaryotes*. Springer Verlag, pp. 247-256 (1981).
15. **Waterbury, J. B.** and R. Y. Stanier. Isolation and growth of cyanobacteria from marine and hypersaline environments. In: M. P. Starr, H. Stolp, H. G. Trüper, A.

- Balows and H. G. Schlegel (eds.), *The Prokaryotes*. Springer Verlag, pp. 221-223 (1981).
16. Watson, S. W., F. W. Valois and **J. B. Waterbury**. The Family Nitrobacteraceae. In: M. P. Starr, H. Stolp, H. G. Trüper, A. Balows and H. G. Schlegel (eds.), *The Prokaryotes*. Springer Verlag, pp. 1005-1002 (1981).
  17. Cavanaugh, C. M., S. L. Gardiner, M. L. Jones, H. W. Jannasch and **J. B. Waterbury**. Prokaryotic cells in the hydrothermal vent tube worm *Riftia pachyptila* Jones: Possible chemoautotrophic symbionts. *Science* 213: 340-342 (1981).
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  19. **Waterbury, J. B.**, C. B. Calloway and R. D. Turner. A cellulolytic nitrogen-fixing bacterium cultured from the gland of *Deshayes* in shipworms (Bivalvia: Teredinidae). *Science* 221: 1401-1403 (1983).
  20. Ong, L. J., A. N. Glazer and **J. B. Waterbury**. An unusual phycoerythrin from a marine cyanobacterium. *Science* 224: 80-83 (1984).
  21. Cuhel, R. L. and **J. B. Waterbury**. Biochemical composition and short term nutrient incorporation patterns in a unicellular marine cyanobacterium, *Synechococcus* (WH 7803). *Limnol. Oceanogr.* 29: 370-374 (1984).
  22. Gibson, J., N. Pfennig and **J. B. Waterbury**. *Chloroherpeton thalassium* gen. nov. et sp. nov., a non-filamentous, flexing and gliding green sulfur bacterium. *Arch. Microbiol.* 138: 96-101 (1984).
  23. Nelson, D. C., **J. B. Waterbury** and H. W. Jannasch. DNA base composition and genome size of the prokaryotic symbiont in *Riftia pachyptila* (Pogonophora). *FEMS Microbiol. Lett.* 24: 267-271 (1984).
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  25. **Waterbury, J. B.**, J. M. Willey, D. G. Franks, F. W. Valois and S. W. Watson. A cyanobacterium capable of swimming motility. *Science* 230: 74-76 (1985).
  26. Watson, S. W., E. Bock, F. W. Valois, **J. B. Waterbury** and U. Schlosser. *Nitrospira marina* gen. nov., sp. nov.: a chemolithotrophic nitrite-oxidizing bacterium. *Arch. Microbiol.* 144: 1-7 (1986).

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28. **Waterbury, J. B.**, S. W. Watson, F. W. Valois and D. G. Franks. Biological and Ecological Characterization of the Marine Unicellular Cyanobacterium *Synechococcus*. In: T. Platt and W. Li (eds.), *Photosynthetic Picoplankton*. *Can. J. Fish. Aquat. Sci. Bull.* 214: 71-120 (1986).
29. Willey, J. M., C. P. Greenberg and **J. B. Waterbury**. Sodium-coupled motility in a swimming cyanobacterium. *J. Bacteriol.* 169: 3429-3434 (1987).
30. Chisholm, S. W., R. J. Olson, E. R. Zettler, R. Goericke, **J. B. Waterbury** and N. Welschmeyer. A novel free-living prochlorophyte abundant in the oceanic euphotic zone. *Nature* 334: 340-343 (1988).
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32. Castenholz, R. and **J. B. Waterbury**. 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 Wilkins (1989).
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36. Distel, D. L., E. F. DeLong and **J. B. Waterbury**. Phylogenetic characterization and in situ localization of the bacterial symbiont of shipworms (Teredinidae: *Bivalvia*) using 16S rRNA sequence analysis and oligodeoxynucleotide probe hybridization. *Appl. Environ. Microbiol.* 57: 2376-2382. (1991).

37. Caron, D. A., E. L. Lim, G. Miceli, **J. B. Waterbury** and F. W. Valois. Grazing of chroococcoid cyanobacteria in laboratory cultures and a coastal plankton community: relative importance of cyanobacterial and bacterial biomass to the diets of protozoa. *Mar. Biol. Prog. Ser.* 76: 205-217. (1991).
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39. Chisholm, S. W., S. L. Frankel, R. Goericke, R. J. Olson, B. Palenik, **J. B. Waterbury**, L. West-Johnsrud and E. R. Zettler. *Prochlorococcus marinus* nov. gen. nov. sp.: An oxyphototrophic marine prokaryote containing divinyl chlorophyll a and b. *Archiv. Microbiol.* 157: 297-300 (1992).
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41. Gallager, S., D. Stoecker and **J. B. Waterbury**. Efficient grazing and utilization of the marine cyanobacterium *Synechococcus* sp. by larvae of the bivalve *Mercenaria mercenaria*. *Mar. Biol.* 119: 251-259 (1994).
42. Dunlap, P. V., K. Kita-Tsukamoto, **J. B. Waterbury** and S. M. Callahan. Isolation and characterization of a visibly luminous variant of *Vibrio fischeri* strain ES114 from the sepiolid squid *Euprymna scolopes*. *Arch. Microbiol.* 164: 194-202 (1995).
43. Urbach, E., D. J. Scanlan, D. L. Distel, **J. B. Waterbury**, and S. W. Chisholm. Rapid Diversification of Marine Picophytoplankton with Dissimilar Light-Harvesting Structures Inferred from Sequences of *Prochlorococcus* and *Synechococcus* (Cyanobacteria). *J. Mol. Evol.* 46:188-201 (1998).
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45. Herdman, M., R.W. Castenholz, I. Iteman, **J.B. Waterbury** and R. Rippka. 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).
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48. Webb, E. A. , J.W. Moffett and **J. B. Waterbury**. Iron Stress in Open-Ocean Cyanobacteria (*Synechococcus*, *Trichodesmium*, and *Crocospaera* spp.): Identification of the IdiA Protein. Appl. Environ. Microbiol. 67: 5444-5452. (2001).
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56. Tuit, C., **J. Waterbury** and G. Ravizza. Diel variation of molybdenum and iron in marine diazotrophic cyanobacteria. Limnol. Oceanogr. 49: 316-328. (2004).
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Form Myxosarcina. In: Bergey's Manual of Systematics of Archaea and  
Bacteria, Online, 2015 Bergey's Manual Trust. DOI: 10.1002/9781118960608.  
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noncoding DNA in situ, despite oligotrophic lifestyle. PNAS 112: 4251-4256.  
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**Patents:**

1. **Waterbury, J. B.**, S. W. Watson, A. N. Glazer and L. J. Ong. Phycoerythrins useful in fluorescent conjugates. Patent N. 4,857,474, 15 August 1989.
2. **Waterbury, J. B.**, C. B. Calloway and R. D. Turner. Bacteria for cellulose digestion. Patent No. 4,861,721, 29 August 1989.