

## CURRICULUM VITAE

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### Education

- 1966 Licence-ès-Sciences: Applied Mathematics. Université de Grenoble, France.
- 1967 Diplôme d'Ingénieur. Université de Grenoble, France,
- 1971 Ph.D. Engineering Sciences. California Institute of Technology, Pasadena

### Academic Experience

- 1971-1973 Research Fellow in Environmental Engineering Sciences, California Institute of Technology, Pasadena.
- 1973-1994 Assistant, Associate and then Professor, Department of Civil & Environmental Engineering, Massachusetts Institute of Technology.
- 1982-1995 Visiting Scientist, Woods Hole Oceanographic Institution, Woods Hole.
- 1986 Associate Director for Research, Ecole des Mines de Paris, Paris, France.
- 1987-1995 Visiting Professor, Ecole Normale Supérieure, Paris, France.
- 1991-1994 Director, R.M. Parsons Laboratory, MIT.
- 1994-present Professor, Department of Geosciences, Princeton University.
- 1996-2000 Visiting Professor, Université de Paris VI.
- 1998-2006 Director, Princeton Environmental Institute, Princeton University.
- 1998-present Director, Center for Environmental BioInorganic Chemistry, Princeton University.
- 1999-2004 Member of Editorial Board - Princeton University Press, Princeton University.
- 2001-2002 Visiting Professor, Université Louis Pasteur, Strasbourg, France
- 2005-2006 Visiting Professor, Ecole Polytechnique Federale de Lausanne, Switzerland

## **Honors and Awards**

Fulbright Fellowship (1967).  
Fellow, the Geochemistry Society (2000)  
C.C. Patterson Medal, Geochemical Society (2001)  
Guggenheim Fellow (2001-2002)  
Fellow, American Geophysical Union (2004)  
Maurice Ewing Medal, American Geophysical Union (2005)  
Urey Medal, European Association for Geochemistry (2009)  
Elected to the National Academy of Sciences (2009)  
California Institute of Technology Distinguished Alumni Award (2009)

## **Professional Activities**

Teaching: Undergraduate and graduate courses in  
Aquatic Chemistry;  
Low Temperature Geochemistry;  
Biogeochemical cycles of Elements;  
Surface Phenomena.

Research: Theoretical, laboratory and field investigations of:  
Coordination chemistry, surface chemistry and photochemistry of trace elements in natural waters;  
Interactions between the chemistry and microbiota in aquatic systems;  
Oceanic primary production;  
Biogeochemical cycles of carbon, nitrogen, phosphorus and bioactive trace elements.

Visiting Committees:  
Swiss Federal Institute for Environmental Science and Technology, (EAWAG) 1994;  
Swiss Federal Institute of Technology, (Lausanne) 1996, 2006;  
California Institute of Technology, Div. of Geological and Planetary Science, 2000- present;  
Molecular Science Institute, Ohio State University, 2002-present;  
Quebec Ocean, 2003-present;  
Institute of Earth Sciences, Hebrew University, Jerusalem, 2005.

## **Society Memberships and Activities**

American Geophysical Union  
American Society for Microbiology  
American Chemical Society  
Member of the Advisory Board of *Environmental Science and Technology*,  
1978-1983; Associate Editor, 1980.  
American Society of Limnology and Oceanography  
Member, Editorial Board of *Limnology and Oceanography*, 1980-1983.  
Editor, Special Issue, 1990.

The Geochemical Society  
American Association for the Advancement of Science.  
New England Aquarium, Member, Scientific Council, 1988-1990.  
Biogeochemistry, Board of Reviewers, 2000-present.  
Editorial Board, Geobiology, United Kingdom  
Editorial Board, Aquatic Sciences, Switzerland  
Editorial Board, Environmental Microbiology, Germany

### **Government and Consulting**

#### National Research Council

Member of Panel on Marine Mineral Technology, 1976-1977.  
Member of Committee on Ocean Waste Transportation, 1982-1984.  
Member of Committee on Irrigation-Induced Water Quality Problems, 1985-1988.

#### National Advisory Committee for Oceans and Atmosphere

Member of Panel on Ocean Mining, 1981-1982.

Participant in workshops and consultant for the National Oceanic and Atmospheric Administration, the Environmental Protection Agency; the Bureau of Land Management; the National Aerospace Administration; and the International Joint Commission.

Institut National de l'Environnement Industriel et des Risques, Membre du Conseil Scientifique (1991-1998)

Nancie Centre International De L'Eau, Membre du Conseil d' Orientation (1995-1999).

#### Environmental consultant to private firms and public interest groups:

Surveyor, Nenninger & Chenevert (1972-1973); Environmental Defense Fund (1975); Nashua Corporation (1975); Water Purification Associates (1976-1977); Massachusetts Executive Office of Environmental Affairs (1976); Procter and Gamble (1977); National Oceanic and Atmospheric Administration (1978-1979); Ocean Mining Co. (1978-1980); Pelican Pipe Co. (1980-1981); Engineering Analysis (1982); National Highway Administration (1982-1983); Perry, Dean, Stahl & Rogers, Inc. (1983); Homestake Mining Co. (1983-1991); Tetra Tech (1984-1990); MITRE Corp. (1986); A.D. Little (1986); Church & Dwight (1986-2000); Ciba-Geigy (1987); Alcoa (1987-1992); Procter and Gamble (1987); Gradient Corp. (1987); AMOCO (1991-1995); Ropes & Gray (1994-1999); Homestake Mining Co. (1997); Covington and Burling (1998); Environ Corp. (1996, 1999), United States Tuna Foundation (1995-present).

### **Former Doctoral and Postdoctoral Advisees (dates and present affiliations)**

Thomas Wichard (Post-doc 2006-2008) Friedrich-Schiller-University Jena, Germany  
Patrick McGinn (Post-doc 2005-2008) NRC of Canada, Institute of Marine Biosciences  
Eric Egleston (Ph.D., 2008) McKinsey & Company, NYC  
Haewon Park (Ph.D., 2008) ENSR/AECOM, NJ  
Yan Xu (Ph.D., 2008) Princeton University  
Eileen Ekstrom (Ph.D., 2006) Harvard University  
Madeli Castruita (Ph.D., 2006) UCLA  
Adam B. Kustka (Post-doc 2002-2006) Rutgers University, NJ  
Yeala Shaked (Post-doc 2002-2005) Hebrew University, Jerusalem  
Degui Tang (Post-doc 2003-2005) Wyeth Industries, NY  
Elizabeth Malcolm (Post-doc 2001-2003) Virginia Wesleyan College  
Tung-Yuan Ho (Post-doc 2001-2003) National Chung Cheng University, Taiwan  
Mak Saito (Post-doc 2000-2003) Woods Hole Oceanographic Institution  
Janina Benoit (Post-doc 2002-2003) Wheaton College, MA  
Allen Milligan (Post-doc 2000-2004) Oregon State University  
Philippe Tortell (Ph.D., 2001) University of British Columbia  
Todd Lane (Post-doc 1996-2001) Sandia National Lab.  
Klaus Keller (Ph.D., 2000) Penn State University  
Elizabeth Cox (Post-doc 1997-1999) Nature Publications  
Anne Kraepiel (Ph.D., 1999) Princeton University  
Jenny Jay, (Ph.D., 1999) UCLA  
Pulcherie Gueneau (Ph.D., 1998) Simon Bolivar University  
Dianne Newman (Ph.D., 1997) MIT  
Marc Amyot (Post-doc 1996-1998). Université de Montreal  
James Gawel (Ph.D., 1996) University of Washington  
Donald Yee (Ph.D., 1996) San Francisco Estuary Institute  
Dianne Ahmann (Ph.D., 1996) Colorado School of Mines  
John Reinfelder (Post-doc., 1992-1996) Rutgers University  
Jennifer G. Lee (Ph.D., 1995) University of Maryland  
Bettina (Bartschat) Vöelker (Ph.D., 1994 Zurich) Colorado School of Mines  
Beth A. Ahner (Ph.D., 1994) Cornell University  
Sarah Green (Ph.D., 1992) Michigan Tech  
Neil M. Price (Post-doc., 1987-1991) McGill University  
Brian Palenik (Ph.D., 1989) Scripps Institution of Oceanography  
Robert Hudson (Ph.D., 1989) University of Illinois  
Janet Hering (Ph.D., 1988) EAWAG  
Gary Jones (Post-doc., 1986-1988) CSIRO, Griffith, Australia  
David Dzombak (Ph.D., 1986) Carnegie Mellon University  
Kevin Farley (Ph.D., 1984) Manhattan College  
William Fish (Ph.D., 1984) Portland State University  
T. David Waite (Ph.D., 1984) University of New South Wales, Australia  
Carl Watras (Post-doc., 1981-1983) Univ. of Wisconsin  
Patricia Foster (Post-doc., 1980-1982) Boston University  
John Rueter (Ph.D., 1979) Portland State University

Donald Anderson (Ph.D., 1978) Woods Hole Oceanographic Institution  
Diane McKnight (Ph.D., 1978) University of Colorado  
Joseph Yeasted (Ph.D., 1978) Int. Tech. Corp., Green Valley, NV  
David Burmaster (Ph.D., 1978) Alceon Corporation, Cambridge, MA  
Kathleen Swallow (Ph.D., 1978) Merrimack College  
John Westall (Ph.D., 1978) Oregon State University  
Harry Hemond (Ph.D., 1977) MIT

## **Publications:**

### **1. Books and Special Volumes**

Morel, F.M.M. and J.G. Hering, *Principles and Applications of Aquatic Chemistry* (2nd ed.). John Wiley, New York, 1993.

Chisholm, S.W. and F.M.M. Morel (eds.) What regulates phytoplankton production in nutrient-rich areas of the open sea? *Limnol. & Oceanogr.*, Vol. 36, No. 8, Dec. 1991.

Dzombak, D.A. and F.M.M. Morel. *Surface Complexation Modeling: Hydrated Ferric Oxide*. John Wiley, New York (1990).

Morel, F.M.M., *Principles of Aquatic Chemistry*, John Wiley & Sons, Inc., New York, (1983).

### **2. Book Chapters**

Morel, F.M.M. and E.G. Malcolm. "The Biogeochemistry of Cadmium" in *Biogeochemical Cycles of Elements*, Vol. 43 of Metal Ions Biological Systems; (A. Sigel, H. Sigel, and R.K.O. Sigel, eds), M. Dekker, New York, p. 301 (2005).

Sunda, W., N.M. Price, F.M.M. Morel. "Trace Metal ion buffers and their use in culture studies" in *Algal Culturing Techniques*, R. Anderson, Editor, Academic Press, Burlington, MA p. 35-63 (2005).

Morel, F.M.M., A.J. Milligan and M.A. Saito. "Marine Bioinorganic Chemistry: The Role of Trace of Metals in the Oceanic Cycles of Major Nutrients" in *Treatise on Geochemistry*, Vol. 6, edited by K.K. Turekian, H.D. Holland, Elsevier Science Ltd, Cambridge, UK, p. 113-143 (2003).

Morel, F.M.M. Broadening the Scientific Ph.D.: The Princeton Experience. Proceedings of NRC's Chemical Sciences Roundtable (CSR) Workshop, *Graduate Education in the Chemical Sciences: Issues for the 21st Century*, p. 130-134 (2000).

Morel, F.M.M. Use of Trace Metals in Marine Bioremediation: A Need for Fundamental Knowledge. Reviews of Proceedings of *the Workshop on Opportunities for Environmental Applications of Marine Biotechnology*, p. 184-192 (2000).

Price, N.M. and F.M.M. Morel. Biological cycling of iron in the ocean. In: *Iron Transport and Storage in Microorganisms, Plants, and Animals*, Vol. 35, p. 1-36 of 'Metal Ions in Biological Systems', A. Sigel and H. Sigel, eds.; M. Dekker, Inc., New York, (1998).

Price, N.M. and F.M.M. Morel. Trace metal nutrition and toxicity in phytoplankton. *Archiv. für Hydrology. Advances in Limnology*. 42: Algae & Water Pollution. Chap. 3 - p. 79-97.

- L.C. Rai, J.P. Gaur & C.J., eds. Stuttgart, (1994).
- Mason, R.P., F.M.M. Morel and H.F. Hemond. The role of microorganisms in elemental mercury formation in natural waters. In: Heavy Metals in the Environment (J.O. Nriagu and R.P. Allan, eds.) Vol. 2 pp. 293-296 (1993).
- Morel, F.M.M., D.A. Dzombak and N.M. Price. Heterogeneous reactions in coastal waters. In: *Ocean Margin Processes in Global Change*, Mantoura, Martin, and Wollast (eds.), Dahlem Konferenzen. John Wiley, New York (1991).
- Hering, J. and F.M.M. Morel. The kinetics of trace metal complexation: Implications for metal reactivity in natural waters. In: *Aquatic Chemical Kinetics*, W. Stumm, (ed.), John Wiley, New York (1990).
- Price, N.M. and F.M.M. Morel. The role of extracellular enzymatic reactions in natural waters. In: *Aquatic Chemical Kinetics*, W. Stumm, (ed.), John Wiley, New York, Chapter 8, 235-257 (1990).
- Morel, F.M.M. and B. Palenik. The aquatic chemistry of trace metals in biofilms. In: *Structure and Function of Biofilms*, W.G. Characklis and P.A. Wilderer (eds.), Dahlem Konferenzen. John Wiley, New York (1989).
- Jones, G., F.M.M. Morel, C. Yentsch and E.A. Funkhouser. A possible immunological approach to the study of plasmalemma redox enzymes in phytoplankton. Lecture series in coastal and estuarine studies. Springer-Verlag (1987).
- Morel, F.M.M. and P.M. Gschwend. The role of colloids in the partitioning of solutes in natural waters. In: *Aquatic Surface Chemistry*, W. Stumm (ed.), John Wiley, New York (1987).
- Morel, F.M.M. Trace metals-phytoplankton interaction: An overview. In: *Biogeochemical Processes at the Land Sea Boundary*, P. Lassere and J.M. Martin (eds.). Elsevier, Amsterdam (1986).
- Cherry, J.A., F.M.M. Morel, J.V. Rouse, J.L. Schnoor and M.G. Wolman. Hydrogeochemistry of sulfide and arsenic-rich tailings and alluvium along Whitewood Creek, South Dakota. Three part series. Mineral and Energy Resources, Colorado School of Mines (1986).
- Morel, F.M.M. and R.J.M. Hudson. The geobiological cycle of trace elements in aquatic systems: Redfield revisited. In: *Chemical Processes in Lakes*, W. Stumm (ed.). John Wiley, New York (1985).
- Morel, F.M.M. and S.L. Schiff. Geochemistry of municipal waste in coastal waters. In: *Ocean Discharge of Municipal Wastes: Impact on Coastal Waters*, E.P. Myers (ed.), MIT Sea Grant College Program Publishers (1984).

Morel, F.M.M. and N.M.L. Morel-Laurens. Trace Metals and plankton in the oceans: Facts and speculations. In: *Trace Metals in Sea Water*, C.S. Wong, E. Boyle, K.W. Bruland, J.D. Burton and E.D. Goldberg (eds.), NATO Conference Series, Series IV: Marine Chemistry, Plenum Press (pp. 841-869) (1983).

Morel, F.M.M., J.G. Yeasted and J.C. Westall. Adsorption models: A mathematical analysis in the framework of general equilibrium calculations. In: *Adsorption of Inorganics at the Solid-Liquid Interface*, M.A. Anderson and A. Rubin (eds.), Ann Arbor Science, Ann Arbor, MI, pp. 263-294 (1981).

Chisholm, S.W., F.M.M. Morel and W.S. Slocum. The phasing and distribution of cell division cycles in marine diatoms. In: *Primary Productivity in the Sea*, P. Falkowski (ed.), Brookhaven Symposium in Biology No. 31, Plenum Press (1980).

Anderson, D.M. and F.M.M. Morel. Toxic dinoflagellate blooms in the Cape Cod region of Massachusetts. In: *Toxic Dinoflagellate Blooms*, D.L. Taylor and H.H. Seliger (eds.), Proceedings of the Second International Conference on Toxic Dinoflagellate Blooms, Key Biscayne, FL (1979).

Morel, F.M.M., N.M.L. Morel-Laurens, D.M. Anderson, D.M. McKnight and J.G. Rueter, Jr., Trace metal speciation and toxicity in phytoplankton cultures. In: *Advances in Marine Environmental Research*. Proceedings of a Symposium, EPA-600/9-79-035 (1979).

Morel, F.M.M. and J.G. Yeasted. On the interfacing of chemical, physical and biological water quality models. In: *Fate of Pollutants in the Air and Wave Environment*, I.H. Suffet (ed.), Wiley-Interscience (1977).

Morel, F.M.M., R.E. McDuff and J.J. Morgan. Interactions and chemostasis in aquatic chemical systems. In: *Trace Metals and Metal-Organic Interactions in Natural Waters*, P.C. Singer (ed.), Ann Arbor Science, Ann Arbor, MI (1973).

### **3. Journal Articles**

Egleston, E.S., C. L. Sabine and F. M. M. Morel. Revelle Revisited: Buffer factors that quantify the response of ocean chemistry to changes in DIC and alkalinity. *Global Biogeochemical Cycles*. In Review

Shi, D., Y. Xu and F. M. M. Morel. Effects of the pH/pCO<sub>2</sub> control method in the growth medium of phytoplankton. *Biogeosciences*. In Review

Xu, Y., J. M. Boucher and F. M. M., Morel. Expression and diversity of alkaline phosphatase EHAP1 in *Emiliania huxleyi* (Prymnesiophyceae). *J. Phycol.* In Review

Hopkinson, B. and F.M.M. Morel. The use of siderophores by marine photosynthetic microorganisms. *Biometals*. In Press

- Kraepiel, A.M.L., J.P. Bellenger, T. Wichard and F.M.M. Morel. Multiple roles of siderophores in free-living nitrogen-fixing bacteria. *Biometals*. In Press
- Milligan A.J., C. E. Mioni and F. M. M. Morel. Response of cell surface pH to pCO<sub>2</sub> and iron limitation in the marine diatom *Thalassiosira weissflogii*. *Marine Chemistry*. In Press
- Wichard, T., J.P. Bellenger, F. M. M. Morel and A.M.L. Kraepiel. Role of the siderophore azotobactin in the bacterial acquisition of nitrogenase metal cofactors. *Environmental Science & Technology*. In Press
- Schaefer, J.K., and F.M.M. Morel. High methylation rates of mercury bound to cysteine by *Geobacter sulfurreducens*. *Nature Geoscience*. (2009).
- Castruita, M., Y. Shaked, L.A. Elmegeen, E.I. Stiefel and F.M.M. Morel. Availability of iron from iron storage proteins to marine phytoplankton. *Limnology and Oceanography*, 53(3): 890-899 (2008).
- Egleston, E., F.M.M. Morel. Nickel limitation and zinc toxicity in a urea-grown diatom. *Limnology and Oceanography*, 53(6): 2462-2471 (2008).
- Ekstrom, E. and F.M.M Morel. Cobalt Limitation of Growth and Mercury Methylation in Sulfate Reducing Bacteria. *Environmental Science and Technology*, 42(1): 93-99 (2008).
- McGinn, P.J. and F.M.M. Morel. Expression and inhibition of the carboxylating and decarboxylating enzymes in the photosynthetic C<sub>4</sub> pathway of marine diatoms. *Plant Physiology*, 146: 1-10 (2008).
- McGinn P.J. and F.M.M. Morel. Expression and regulation of carbonic anhydrases in the marine diatom *Thalassiosira pseudonana* and in natural phytoplankton assemblages from Great Bay, New Jersey. *Physiologia Plantarum*, 133: 78-91 (2008).
- Morel, F.M.M., A.B. Kustka, and Y. Shaked. The role of unchelated Fe in the iron nutrition of phytoplankton. *Limnology and Oceanography*, 53(1): 400-404 (2008).
- Morel, F.M.M. The co-evolution of phytoplankton and trace element cycles in the oceans. *Geobiology*, 6(3): 318-324 (2008).
- Park, H., P.J. McGinn and F.M.M. Morel. Expression of the cadmium carbonic anhydrase of diatoms in seawater. *Aquatic Microbial Ecology*, 51: 183-193 (2008).
- Riebesell U, R.G.J. Bellerby, A. Engel, V.J. Fabry, D.A. Hutchins, T.B.H. Reusch, K. G. Schulz and F.M.M. Morel. Comment on "Phytoplankton Calcification in a High-CO<sub>2</sub> World" *Science*, 322:1466c (2008)
- Xu Y., Feng L., Jeffrey P.D., Shi Y. G. and Morel F.M.M. Structure and metal exchange in the cadmium carbonic anhydrase of marine diatoms. *Nature*, 452: 56-61 (2008).

- Castruita, M., L.A. Elmegeen, Y. Shaked, E.I. Stiefel and F.M.M. Morel. Comparison of the kinetics of iron release from a marine (*Trichodesmium erythraeum*) Dps protein and mammalian ferritin in the presence and absence of ligands. *Journal of Inorganic Biochemistry*, 101: 1686-1691 (2007).
- Kustka, A.B., A.E. Allen and F.M.M. Morel. Sequence analysis and transcriptional regulation of Fe acquisition genes in two marine diatoms. *Journal of Phycology*, (43): 715-729 (2007).
- Park, H., B. Song, and F.M.M. Morel. Diversity of the cadmium containing carbonic anhydrase (DDCA) in marine diatoms and natural waters. *Environmental Microbiology*, 9(2): 403-413 (2007).
- Xu, Y., D. Tang, Y. Shaked and F.M.M. Morel. Zinc, cadmium and cobalt inter-replacement and relative use efficiencies in the coccolithophore *Emiliana huxleyi*. *Limnology and Oceanography*, 52(5): 2294-2305 (2007).
- Castruita, M., M. Saito, P.C. Schottel, L.A. Elmegeen, S. Myneni, E.I. Stiefel, and F.M.M. Morel. Overexpression and characterization of an iron storage and DNA-binding Dps protein from *Trichodesmium erythraeum*. *Applied Env. Microbiology*, 72(4): 2918-2924 (2006).
- Shaked, Y., Y. Xu, K. Leblanc and F.M.M. Morel. Zinc availability and alkaline phosphatase activity in *Emiliana huxleyi*: Implications for Zn-P co-limitation in the ocean. *Limnology and Oceanography*, 51: 299-309 (2006).
- Tang, D. and F.M.M. Morel. Distinguishing between cellular and Fe-oxide associated trace elements in phytoplankton *Marine Chemistry*, 98: 18-30 (2006).
- Xu, Y, T.M. Wahlund, L. Feng, Y. Shaked, and F.M.M. Morel. A novel alkaline phosphatase in the coccolithophore *emiliana huxleyi* (prymnesiophyceae) and its regulation by phosphorus. *Journal of Phycology*, 42(4): 835-844 (2006).
- Lane, T.W, M.A. Saito, G.N. George, I.J. Pickering, R.C. Prince, F.M.M. Morel. A cadmium enzyme from a marine diatom. *Nature*, 435: 42 (2005).
- Amyot, M., F.M.M. Morel and P. A. Ariya. Dark oxidation of dissolved and liquid elemental mercury in aquatic environments. *Environ. Sci. Technol.*, 39(1): 110 (2005).
- Sternberg, E., D. Tang, T.-Y. Ho, C. Jeandel and F.M.M. Morel. Barium Uptake and Adsorption in Diatoms, *Geochemica et Cosmochimica Acta* , Vol. 69(11): 2745-2752 (2005).
- Kustka, A. B., Y. Shaked, A.J. Milligan, D. W. King, F.M.M. Morel. Extracellular production of superoxide by marine diatoms: Contrasting effects on iron redox chemistry and bioavailability. *Limnology and Oceanography*, 50(4): 1172-1180 (2005).

- Shaked, Y., A.B. Kustka and F.M.M. Morel. A general kinetic model for iron acquisition by eukaryotic phytoplankton. *Limnology and Oceanography*, 50(3): 872-882 (2005).
- Shaked, Y., A.B. Kustka, F.M.M. Morel and Y. Erel. Simultaneous determination of iron reduction and uptake by phytoplankton, *Limnology and Oceanography: Methods* <http://www.aslo.org/lomethods/free/2004/0137.pdf>, 2: 137-145 (2004).
- Reinfelder, J.R., A.J. Milligan, F.M.M. Morel. The role of the C4 pathway in carbon accumulation and fixation in a marine diatom. *Plant Physiology*, 135: 2106-2111 (2004).
- Lalonde, J.D., M. Amyot, J. Orvoine, F.M.M. Morel, J-C. Auclair, P.A. Ariya, Photoinduced Oxidation of Hg<sup>0</sup>(aq) in the Waters from the St. Lawrence Estuary *Environ. Sci. Technol.*, 38 (2): 508-514. (2004).
- Kraepiel, A.M.L., K. Keller, H.B. Chin, E.G. Malcolm, F.M.M. Morel. Response to Comment on “Sources and Variations of Mercury in Tuna” *Environ. Sci. Technol.*, 38(14): 4048 (2004).
- Milligan, A. J. and F.M.M. Morel. Dynamics of silicon metabolism and silicon isotopic discrimination in a marine diatom as a function of pCO<sub>2</sub>. *Limnology and Oceanography*, 49 (2): 322-329 (2004).
- Ekstrom, E.B., F.M.M. Morel, J.M. Benoit. Mercury Methylation Independent of Acetyl-CoA Pathway in SRB. *Appl. and Environ. Microbiol.*, 69 (9): 5414 – 5422 (2003).
- Kraepiel, A.M.L., K. Keller, H.B. Chin, E.G. Malcolm, F.M.M. Morel. Sources and Variations of Mercury in Tuna. *Environ. Sci. Technol.*, 37 (24): 5551-5558 (2003).
- Quigg, A., Z.V. Finkel, A.J. Irwin, Y. Rosenthal, T.-Y.Ho, J.R. Reinfelder, O. Schofield, F.M.M. Morel, P.G. Falkowski, The evolutionary inheritance of elemental stoichiometry in marine phytoplankton. *Nature*, 425: 291-294. (2003).
- Ho, T.-Y., A. Quigg, Z.V. Finkel, A.J. Milligan, K. Wyman, P.G. Falkowski, F.M.M. Morel. The Elemental Composition of Some Marine Phytoplankton. *J. Phycol.*, 39: 1145-1159. (2003).
- Saito, M. A., D.M. Sigman and F.M.M. Morel. The bioinorganic chemistry of the ancient ocean: the co-evolution of cyanobacterial metal requirements and biogeochemical cycles at the Archean – Proterozoic boundary? *Inorganica Chimica Acta* 356C: 308-318 (2003).
- Morel, F.M.M. and N.M. Price. The biogeochemical cycles of trace metals in the oceans. *Science*, 300: 944-947 (2003).
- Milligan, A.J. and F.M.M. Morel. A proton buffering role for silica in diatoms. *Science*, 297: 1848-1850 (2002).

- Tortell, P.D., G.R. DiTullio, D.M. Sigman, and F.M.M. Morel. CO<sub>2</sub> effects on taxonomic composition and nutrient utilization in an Equatorial Pacific phytoplankton assemblage. *MEPS*, 236: 37-43 (2002).
- Tortell, P.D. and F.M.M. Morel. Sources of inorganic carbon for phytoplankton in the Eastern Subtropical and Equatorial Pacific Ocean. *Limnology and Oceanography*. 47: 1012-1022 (2002).
- Morel, F.M.M., E.H. Cox, A.M.L. Kraepiel, T.W. Lane, A.J. Milligan, I. Schaperdoth, J.R. Reinfelder and P.D. Tortell. Acquisition of inorganic carbon by the marine diatom *Thalassiosira weissflogii*. *Functional Plant Biology*, 29: 2,3 p. 301-308 (2002).
- Jay, J.A., K.J. Murray, C.C. Gilmour, R.P. Mason, F.M.M. Morel, A.L. Roberts and H.F. Hemond. Mercury methylation by *Desulfovibrio desulfuricans* ND 132 in the presence of polysulfides. *Appl. and Environ. Microbiol.* 68: 5741-5745 (2002)
- Lam, P.J., P.D. Tortell, and F.M.M. Morel. Differential effects of iron additions on organic and inorganic carbon production by phytoplankton. *Limnology and Oceanography*, 46: 1199-1202 (2001).
- Gawel, J.E., C.G. Trick, and F.M.M. Morel. Phytochelatins are bioindicators of atmospheric metal insult to trees near Sudbury, Ontario, Canada. *Environ. Sci. Technol.*, 35: 2108-2113 (2001).
- Lalonde, J.D., M. Amyot, A.M.L. Kraepiel, and F.M.M. Morel. Photooxidation of Hg(0) in an estuarine system. *Environ. Sci. Technol.*, 35: 1367-1372 (2001).
- Keller, K., K. Tan, F.M.M. Morel and D.F. Bradford. Preserving the ocean circulation: implications for climate policy. *Working Paper Series 7476, NBER (2000), Climatic Change*, 47: 17-43 (2000).
- Jay, J., F.M.M. Morel and H.F. Hemond. Mercury speciation in the presence of polysulfides. *Environ. Sci. Technol.*, 34: 2196-2200 (2000).
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