Mark Lovell Wells

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CURRICULUM VITAE

Education

Ph.D.	Chemical Oceanography, University of Maine, 1989
M.Sc	Biological/Chemical Oceanography, University of British Columbia, 1982
B.Sc	Marine Biology (Honours), University of British Columbia, 1979

Professional Experience

2008-Present	Professor, School of Marine Sciences, University of Maine
2002-2008	Associate Professor, School of Marine Sciences, University of Maine Research Ocean Scientist I, Institute of Marine Sciences, University of California, Santa Cruz, CA
1999-2002	Assistant Professor, School of Marine Sciences, University of Maine
1997-2002	Associate Research Marine Chemist, Step II Institute of Marine Sciences, University of California, Santa Cruz, CA
1995- 1997	Assistant Research Marine Chemist, Step IV Institute of Marine Sciences, University of California, Santa Cruz, CA
1993-1995	Assistant Research Marine Chemist, Step II Institute of Marine Sciences, University of California, Santa Cruz, CA
1992-1993	Postgraduate Research Marine Chemist, Step VIII Institute of Marine Sciences, University of California, Santa Cruz, CA Project: Colloid Aggregation and the Oceanic Chemistries of Trace Metals (ONR) Principal Investigators: Mark L. Wells and Kenneth W. Bruland
1989-1992	Postdoctoral Research Marine Chemist, Step VII Scripps Institution of Oceanography, La Jolla, CA Project: Marine Colloids (ONR). Principal Investigator: Professor Edward D. Goldberg

Professional Memberships

American Society of Limnology and Oceanography
American Chemical Society
American Geophysical Union
The Oceanography Society
Sigma XI

Advisory Panels

International Advisory Committee, Dongshan Swire Marine Station, Xiamen University (D-SAMRT), State Key Laboratory of Marine Environmental Science

Biology Panel of the Global Ocean Acidification Observation Network (GOA-ON)

Refereed Publications

Lotliker, A., Baliarsingha, S.K., Trainer, V.L., Wells, M.L, Wilson, C., Bhaskara, U., Samantaa, A., and Shahimol, S.R. (2018) Characterization of oceanic *Noctiluca* blooms not associated with hypoxia in the Northeastern Arabian Sea. ***Harmful Algae*** 74:46-57

Trick, CG, Trainer, VL, Cochlan, WP, Wells, ML, and Beall, BF (2018) The successional formation and release of domoic acid in a *Pseudo-nitzschia* bloom in the Juan de Fuca Eddy: A drifter study. ***Harmful Algae*** 79:105-114

Wang, T., Tong, S., Liu, N., Li F., Wells, M.L., and Gao, K. (2017) The fatty acid content of plankton is changing in subtropical coastal waters as a result of OA: results from a mesocosm study. ***Marine Environmental Research*** 132:51-62

Baliarsingh, S.K., Lotliker, A.A., Trainer, V.L., Wells, M.L., Parida, C., Sahu, B.K., Srichandan, S., Sahoo, S., Sahu, K.C., Kumar, T.S. 2016. Environmental dynamics of a red *Noctiluca scintillans* bloom in tropical coastal waters. ***Marine Pollution Bulletin*** 111: 277-286.

Wells, M. L., Potin, P., Craigie, J. S., Raven, J. A., Merchant, S. S., Hellivell, K. E., Smith, A. G., Camire, M. E., Brawley, S. H. (2016) Algae as Nutritional and Functional Foods Sources: Revisiting our Understanding. ***Journal of Applied Phycology*** doi:10.1007/s10811-016-0974-5

Orlova, T. Y., Kamenaeva, P. A., Stonik, I. V., Morozova, T. V., Efimova, K. V., Moore, L., Eberhart, B-T., Wells, M. L., and Trainer, V. L. (2015) Diarrhetic Shellfish Toxins in Primorsky Krai, Russia. ***Journal of Shellfish Research*** 34:1151-1160.

Wells, M. L., Trainer, V. L., Smayda, T. J., Karlson, B. S., Trick, C. G., Kudela, R. M., Ishikawa, A., Bernard, S., Wulff, A., Anderson, D. M., Cochlan, W. P. (2015). Harmful Algal Blooms (HABs) and Climate Change: What do We Know and Where Do We Go From Here? ***Harmful Algae*** 49:68-93.

Koffman, Bess G.; Handley, Michael J.; Osterberg, Erich C.; et al. (2014) Dependence of ice-core relative trace-element concentration on acidification. ***Journal of Glaciology*** 60:103-112

Chappell, P. D., Whitney, L. P., Haddock, T. L., Menden-Deuer, S., Roy, E.G., Wells, M.L., and Jenkins, B. D. (2013) Thalassiosira spp. community composition shifts in response to an eddy in the northeast Pacific Ocean. Frontiers in Microbiology, September 23, doi: 10.3389/fmicb.2013.00273

Xu, J., Turner, J.W., Idso, M., Biryukov, S. V., Rognstad, L., Gong, H., Trainer, V. L., Wells, M.L., Strom, M. S., and Yu, Q.(2013). In Situ Strain-Level Detection and Identification of Vibrio parahaemolyticus Using Surface-Enhanced Raman Spectroscopy. Analytical Chemistry 85(5):2630-2637

Weston, A., Dunlap, W.C., Shick, J. M., Klueter, A., Iglic, K., Vukelic, A., Starcevic, A., Ward, M., Wells, M.L., Trick, C.G., Long, P.F. (2012) A Profile of an Endosymbiont-enriched Fraction of the Coral Stylophora pistillata Reveals Proteins Relevant to Microbial-Host Interactions. ***Molecular & Cellular Proteomics*** doi:10.1074/mcp.M111.015487

Mayer LM and Wells ML (2012) Aggregation of Colloids in Estuaries. In: Wolanski E and McLusky DS (eds.) Treatise on Estuarine and Coastal Science, Vol 4, pp. 143–160. Waltham: Academic Press.

Whitney, L.P., Lins, J.J., Hughes, M.P., Wells, M.L., Chappell, P.D., and Jenkins B.D. (2011) Characterization of putative iron responsive genes as species-specific indicators of iron stress in *Thalassiosiroid* diatoms. ***Frontiers in Aquatic Microbiology*** doi: 10.3389/fmicb.2011.00234

Roy, E. and Wells, M.L. (2011) Regulation of Fe(II) oxidation rates by organic complexing ligands in the Eastern Subarctic Pacific. ***Marine Chemistry*** 127:115-122

Xiu, P., Palacz, A.P., Chai, F., Roy, E.G., and Wells, M.L. (2011). Iron flux induced by Haida eddies in the Gulf of Alaska. ***Geophysical Research Letters*** 38, 13607, doi:10.1029/2011GL047946

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Shick, J.M., Iglic, K., Wells, M.L., Trick, C.G., Doyle, J., Dunlap, W.C. (2011) Effects of Iron Availability on the Response of the Coral *Stylophora pistillata* to Light and High Temperature: Implications of Trace-Metal Limitation for Coral Bleaching. ***Limnology and Oceanography*** 56:813-828.

Wu, J., Wells, M.L. and Rember, R. (2011) Dissolved Iron in the Deep Tropical Pacific: Evidence for Long-Range Transport of Hydrothermal Iron. ***Geochimica Cosmochimica Acta*** 75:460-468.

Trick, C. G., Bill, B.D. Cochlan, W. P., Wells, M.L. Trainer, V.L. and Pickell, L.D. (2010) Iron Enrichment Stimulates Toxic Diatom Production in High-Nitrate, Low Chlorophyll Areas. ***Proceedings of the National Academy of Sciences*** 107:5887-5892.

Trainer, V.L., Wells, M.L., Cochlan, W.P., Trick, C.G., Bill, B.D., Baugh, K.A., Beall, B.F., Herndon, J. and Lundholm, N. (2009) An ecological study of a massive toxigenic bloom of Pseudo-nitzschia cuspidata off the Washington State coast. ***Limnology and Oceanography*** 54:1461-1474.

Uematsu, M., A. Tsuda, M. L. Wells, and H. Saito.(2009) Introduction to Subarctic iron Enrichment for Ecosystem Dynamics Study II (SEEDS II). ***Deep-Sea Research Part II - Topical Studies in Oceanography*** 56: 2731-2732.

Wells, M.L., Trick, C.G., Cochlan, W. P. and Beall, B. (2009) Iron Limitation in the Western Subarctic Pacific SEEDSII Mesoscale Fertilization Experiment. ***Deep-Sea Research*** 56:2810-2821.

Floge, S. A., Hardy, K.R., Boss, E. and Wells, M.L. (2009) Analytical intercomparision between Type I and Type II long pathlength liquid core waveguides for the measurement of chromophoric dissolved organic matter (CDOM). ***Limnology and Oceanography Methods*** 7:260-268.

Pickell, L., Wells, M.L., Trick, C.G., and Cochlan, W. P. (2009) A sea-going continous culture system for investigating phytoplankton response to macro- and micronutrient (trace metal) manipulations. ***Limnology and Oceanography Methods***. 7:21-32

Trainer, V.L., Hickey, B.M., Lessard, E.J., Cochlan, W. P., Trick, C.G., Wells, M.L., MacFadyen, A., Moore, S. K. (2009) Variability of Pseudo-nitzschia and domoic acid in the Juan de Fuca eddy region and its adjacent shelves. ***Limnology and Oceanography*** 54:289-308.

Orcutt, K., Gunderson K., Wells, M.L., Poulton, N., Sieracki, M.E. and Smith, G.J. (2008) Lighting up phytoplankton cells with quantum dots. ***Limnology and Oceanography Methods.*** 6:653-658

Roy, E., Jiang, C.,Wells, M.L., and Tripp, C. (2008) Determining subnanomolar iron concentrations in oceanic seawater using siderophore-modified film analyzed by infrared spectroscopy. ***Analytical Chemistry*** 80:4689-4695.

Roy, E. and Wells, M.L. (2008) The Persistence of Fe(II) in Surface Waters of the Western Subarctic Pacific. ***Limnology and Oceanography*** 53:89-98.

Tsuda A. et al. (2007) Evidence for the grazing hypothesis: Grazing reduces phytoplankton responses of the HNLC ecosystem to iron enrichment in the western subarctic Pacific (SEEDS II). ***Journal of Oceanography*** 63:983-984.

Floge, S.A. and Wells, M.L. (2007). Variation in Colloidal Chromophoric Dissolved Organic Matter in the Damariscotta Estuary, Maine. ***Limnology and Oceanography***, 52:32-45.

Orcutt, K.M. and Wells, M.L. (2007). A Liposome-Based Nanodevice for Sequestering Siderophore-Bound Iron. J. of ***Membrane Science***, 288:247-254.

Yoshimura, T., Nishioka, J., Saito, H., Takeda, S., Tsuda, A. and Wells, M.L. (2006). Distributions of Particulate and Dissolved Organic and Inorganic Phosphorous in North Pacific Surface Waters. ***Marine Chemistry*** 103:112-121.

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Boehme, J. and Wells, M.L. (2006). Fluorescence variability of marine and terrestrial colloids: examining size fractions of chromophoric dissolved organic matter in the Damariscotta River estuary. ***Marine Chemistry*** 101:95-103.

Wells, M.L., Trick, C.G., Cochlan, W.P., Hughes, M.P., and Trainer, V. L. (2005). Domoic acid: The synergy of iron, copper, and the toxicity of diatoms. ***Limnology and Oceanography***, 50(6), 1908–1917

Wells, M.L., (2004). The colloidal size spectrum of CDOM in the coastal region of the Mississippi Plume using flow field-flow fractionation. ***Marine Chemistry*** 89:89-102.

Chen, R.F. et al., (2004). Chromophoric dissolved organic matter (CDOM) source characterization in the Louisiana Bight. ***Marine Chemistry*** 89:257-272.

Wells, M. L. and Trick, C. G. (2004) Controlling iron availability to phytoplankton in iron-replete coastal waters. ***Marine Chemistry*** 86: 1-13.

Bates, S.S., C. Léger, M.L. Wells, and K. Hardy. (2003). Photodegradation of domoic acid, p. 30-35. In: S.S. Bates [ed.] Proceedings of the Eighth Canadian Workshop on Harmful Marine Algae. Can. Tech. Rep. Fish. Aquat. Sci. 2498.

Wells, M. L., (2003) The Lower Limit of Iron enrichment Required to Initiate Diatom Blooms in HNLC waters. ***Marine Chemistry*** 82: 101-114

Ward, B.B., Granger, J., Maldonado, M.T. and Wells, M.L., (2003). What limits bacterial production in the suboxic region of permantly ice-covered Lake Bonney, Antarctica. Aquatic Microbial Ecology, 31: 33-47.

Maldonado, M.T., M.P. Hughes, E. L. Rue, and M. L. Wells. (2002). The effect of Fe and Cu on growth and domoic acid production by *Pseudo-nitzschia multiseries* and *Pseudo-nitzschia australis*. *Limnol. Oceanogr*. 47:515-526.

Wells, M. L. (2002). Marine colloids and trace metals. In Biogeochemistry of Marine Dissolved Organic Matter. Elsevier Science, USA. Pp. 367-404

Wells, M. L., G. J. Smith, and K. W. Bruland. (2000) The distribution of colloidal and particulate bioactive metals in Narragansett Bay, RI. ***Mar. Chem.*** 71:143-163.

Wells, M. L. (1999). Manipulating iron availability in nearshore waters. ***Limnology and Oceanography*** 44:1002-1008.

Wells, M. L., Vallis, G and Silver, E. (1999). Influence of tectonic processes in Papua New Guinea on past productivity in the eastern equatorial Pacific Ocean. ***Nature***, 398:601-604.

Wells, M. L. and Bruland, K. W. (1998). An improved method for rapid preconcentration and determination of bioactive trace metals in seawater using solid phase extraction and high resolution inductively coupled plasma mass spectrometry. ***Mar. Chem***. 63:145-153.

Wells, M. L., P. B. Kozelka, and K. W. Bruland. (1998). The complexation of "dissolved" Cu, Zn, Cd, and Pb by soluble and colloidal organic matter in Narragansett Bay, RI. ***Mar. Chem***., 62:203-217.

Wells, M. L. (1998). Marine colloids: a neglected dimension. News and Views, ***Nature*** 391:530-531.

Buesseler, K. O. et al.. (1996). An intercomparison of cross-flow filtration techniques used for sampling marine colloids: overview and organic carbon results. ***Mar. Chem.***, 55:1-31.

Wells, M. L., N. M. Price, and K. W. Bruland. (1995). Iron chemistry in seawater and its relationship to phytoplankton. ***Mar. Chem.*** 48:157-182.

Wells, M. L., Price, N. M., and Bruland, K. W. (1994). Iron limitation and the Cyanobacterium *Synechococcus* in equatorial Pacific waters. ***Limnol. Oceanogr.***, 39:1481-1486.

Wells, M. L. and Goldberg, E. D. (1994). The distribution of colloids in the North Atlantic and Southern Oceans. ***Limnol. Oceanogr.*** 39:286-302.

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Wells, M. L., (1994). Pumping Iron in the Pacific. News and Views, ***Nature*** 368:295-296.

Wells, M. L. and Goldberg, E. D. (1993). Colloid aggregation in seawater. ***Mar. Chem.***, 41:353-358.

Wells, M. L. and Goldberg, E. D., (1992). Marine sub-micron particles. ***Mar. Chem.***, 40:5-18.

Kepkay. P. and Wells, M. L.. (1992) Dissolved organic carbon north Atlantic surface waters. ***Mar. Ecol. Prog. Ser.***, 80:275-283.

Longhurst, A. R., Koike, L., Li, W., Rodriguez, J., Dickie, P., Kepkay, P., Partensky, F., Bautista, B., Ruiz, J., Wells, M. L. and Bird, D., (1992). Sub-micron particles in north-west Atlantic shelf water. ***Deep-Sea Res., Rapid Response Paper,*** 39:1-7.

Wells, M. L. and Goldberg, E. D., (1991). Small colloids in seawater. ***Nature*** 353:342-344.

Wells, M. L., Mayer, L. M., Donard, O. F. X., de Souza Sierra, M. M. and Ackleson, S. G., (1991). The photolysis of colloidal iron and its significance in the ocean. ***Nature*** 353:248-250.

Wells, M. L. and Mayer, L. M., (1991). The photoconversion of colloidal iron oxyhydroxides in seawater. ***Deep-Sea Res., Rapid Response Paper***, 38:1379-1395.

Wells, M. L., Mayer, L. M. and Guillard, R. R. L., (1991). A chemical method for estimating the availability of iron to phytoplankton in seawater, 1991. ***Mar. Chem.***, 33:23-40.

Wells, M. L., Mayer, L. M and Guillard, R. R. L., (1991). Evaluation of Fe as a triggering factor for red tide blooms. ***Mar. Ecol. Prog. Ser.***, 69:93-102.

Wells, M. L. and Mayer, L. M., (1991). Variations in the chemical lability of Fe in estuarine, coastal and shelf waters and its implications for phytoplankton. ***Mar. Chem.***, 32:195-210.

Wells, M. L., (1991). The availability of iron in seawater: A perspective. ***Biol. Oceanogr.***, 6:463-476.

Wells, M. L., Zorkin, N. G. and Lewis, A. G., (1983). The role of colloid chemistry in providing a source of iron to phytoplankton. ***J. Mar. Res.***, 41:731-746.

Papers in Review or in preparation for submission

Zhou, F., Chai, F., Huang, D., Ma1, X., Meng, Q., Xue, H., Wells, M., Xuan, J., Wang, P., Ni1, X., Zhao, Q., Liu1, C., and Su, J. (submitted) Causative links among high-biomass phytoplankton blooms and hypoxia off the Changjiang Estuary, China. ***Environmental Science and Technology***

Wells, M.L. and 18 others (submitted) Future HAB Science: Directions and Challenges in a Changing Climate. ***Harmful Algae***

Whiticombe, S., Wells, M., Oliver, T., Newton, J., Dupont, S. (in prep.) Identifying Ocean Acidification Impacts on Marine Ecosystems: Adding Biological Parameters to the Global Ocean Acidification Observation Network (GOA-ON) ***Limnology and Oceanography***

Wells, M.L., Trick, C.G., Trainer, V.L., Ikeda, C., Schellenbach, A. Thornton, K., Bill, B., and Cochlan, W. P. (in prep.) The Increase or Decrease of Iron Availability Depending on the Source of Ligands to Surface Waters. ***Limnology and Oceanography***

Ye, Z., Rawson, P. D., Bricknell, I. R., and Wells, M.L. (TBS) The Effect of Temperature on Depuration of the Pathogenic Bacteria *Vibrio Anguillarum* in the Eastern Oyster (*Crassostrea verginica*) in the Gulf of Maine. ***Applied and Environmental Microbiology***

Pickell, L.D., Wells, M.L. Trick, C.G., Cochlan, W.P., Betts, J.N., and Trainer, V.L. (TBS) Dissolved Domoic Acid: A Competitive Advantage to *Pseudo-nitzschia* in Coastal Waters. ***Limnology and Oceanography***

Roy, E. and Wells, M.L. (in revision) The role of Haida eddies in iron transport to the eastern subarctic Pacific Ocean. ***Deep-Sea Research Part I***

Published Abstracts

Wells, M.L., Trick, C.G., Trainer, V.L., Ikeda, C., Schellenbach, A. Thornton, K., Bill, B. Ocean Acidification and Iron Availability: A Natural Multiple Stressor Experiment in Iron Limited Upwelling Waters. Third Xiamen Symposium on Marine Environmental Sciences, January 2017

Wells, M.L.. Harmful Algal Blooms and Climate Change: Challenges and Paths for Moving Forward. International Society for the Study of Harmful Algae. October, 2016

Ye, Z., Rawson, P. and Wells, M.L. The Effect of Temperature on Depuration of the Pathogenic *Vibrio anguillarum* in the Eastern Oyster (*Crassostrea virginica*). Salish Sea Ecosystem Conference, April, 2015.

Wells, M.L., Trick, C.G., Trainer, V.L., Ikeda, C., Schellenbach, A. Thornton, K., Bill, B. The Effect of Ocean Acidification on the Availability of Ambient Iron in Upwelling Waters. Ocean Acidification Principal Investigators' Meeting, June, 2015

Wells, M. L. Harmful Algal Blooms and Climate Change: What do we Know and How Can we Best Proceed? U.S. National Harmful Algal Bloom Meeting, October, 2015

Wells, M. L., Trainer, V.L., and Trick, C.G. Harmful Algal Blooms and the Human Dimension. North Pacific Marine Science Organization Annual Meeting, October, 2015

Wells, M. L., Trick, C. G., Trainer, V., Ikeda, C., Schellenbak, A., Thornton, K., and Bill, B. The Effect of Ocean Acidification on the Availability of ambient Fe in Upwelling Waters. American Society of Limnology and Oceanography, February 2015.

Trainer, V. L., Moore, L., Eberhart, B. T., Bill, B., Cochlan W. P.,Ikeda, C., Wells, M. L., and Trick, C.G. Characterization of toxic activity from *Heterosigma akashiwo*: a tale of two assays. 16th International Harmful Algal Bloom Meeting, New Zealand, November, 2014.

Wells, M. L. and Hughes, M. P. Iron Grazing by *Amphidinium carterae*: An Alternate Iron Acquisition Strategy. 16th International Harmful Algal Bloom Meeting, New Zealand, November, 2014.

Wells, M.L., Makino, M., Sachoemar, S., and Hirota, M. The effect of multi-trophic aquaculture on nutrient loading in fish and shrimp ponds, Karawang Indonesia. North Pacific Marine Science Organization (PICES) Annual Meeting, Korea, 2014.

Helm, Z., C. Tripp, D. A. King, M. Gammana, T. Williams, K. Nzamubona, B. Kim, J. Morotti, and M. Wells. Optical Detection Of Sub-Nanomolar Concentrations Of Dissolved Fe In Seawater On A Membrane Interface. American Society of Limnology and Oceanography, February 2013.

Wells, M. L., Trainer, V. L., Yu, Q. and Strom, M. Raman-based Barcoding for the Identification of Toxic Marine Pathogens and Phytoplankton. 15th International Conference on Harmful Algal Blooms, Korea, 2012.

Wells, M. L., Stocker, R, Hughes, M. P., and Ahmed, T.. Microfluidic assessment of chemotaxis of marine bacteria towards different inorganic and organically-complexed iron species. American Society of Limnology and Oceanography, Puerto Rico. February 2011

Wells, M.L., Strom, M. Yu, Q., and Trainer, V.L. Raman-Based Identification of Marine Pathogens. American Society of Limnology and Oceanography, Puerto Rico. February 2011

Roy, E., and Wells, M.L. Evidence for regulation of Fe(II) Oxidation Rates by Organic Complexing Ligands in the Eastern Subarctic Pacific. North Pacific Marine Science Organization (PICES) Annual Meeting, Portland, OR, October, 2010.

Trainer V.L., Wells, M.L., Trick, C.G., Cochlan, W.P., Bill1, B.D., and Herndon, J.. Enhancing Seafood Safety Monitoring in Developing Countries. 14th International Harmful Algal Bloom Meeting, Crete, November, 2010

Published Abstracts (cont.)

Orcutt, K.M., Wallace, K.J.,and Wells, M.L.. Development of a next generation sensor for measuring biologically available iron in seawater. . American Society of Limnology and Oceanography, Portland, OR. February 2010

Roy, E. and Wells, M.L. Development and use of a reactive biomimetic film to measure trace iron concentrations in natural seawater. American Society of Limnology and Oceanography, Portland, OR. February 2010

Whitney, L, P, Hughes, M, P, Lins, J, J, Wells, M, L, and Jenkins, B.D. The effect of iron limitation on diatom chloroplast gene expression. American Society of Limnology and Oceanography, Portland, OR. February 2010

Wells, M.L. and Hardy, K. Size fractionation and characterization of natural marine nanoparticles by flow-field flow fractionation coupled to multi-angle laser light scattering. American Chemical Society Meeting, August, 2009.

Shick JM, Iglic KL, Wells ML, Trick CG and Dunlap WC. Iron limitation reduces photosynthetic efficiency in Stylophora pistillata colonies at high temperature. American Society of Limnology and Oceanography, Nice, January 2009.

Iglic KL, Hewlett V, Shick JM, Wells ML, Trick CG and Dunlap WC. Flow Cytometric measures of oxidative stress in freshly isolated algal symbionts as a function of temperature and iron availability to corals, American Society of Limnology and Oceanography, Nice, January 2009.

Trick CG, Shick JN, Wells ML, Doyle J, Iglic K, Hewlett VB and Dunlap WC. Iron and temperature effects on photosynthetic pigments in Stylophora pistillata zooxanthellae. American Society of Limnology and Oceanography, Nice, January 2009.

The Role Large Eddies In Iron Transport To The Eastern Subarctic Pacific Ocean. E. Roy and M.L. Wells. AGU/ASLO Ocean Sciences International Meeting, Orlando FL. February, 2008

Domoic Acid Assisted Copper Uptake By A Natural Community From Hnlc Waters. K. Hardy, M.L. Wells, C. G. Trick, and V.L. Trainer. AGU/ASLO Ocean Sciences International Meeting, Orlando FL. February, 2008

The Effects Of Continuous Iron, Copper And Domoic Acid Supply On Shaping The Trajectory Of Phytoplantkon Assemblages In Nearshore And Offshore Subarctic Pacific Waters. L. D. Pickell, M.L. Wells, and C. G. Trick. AGU/ASLO Ocean Sciences International Meeting, Orlando FL. February, 2008

Optical variability of colloidal dissolved organic matter: annual colloidal cycling in the damariscotta river estuary. J. Boehme and M. L. Wells. AGU/ASLO Ocean Sciences International Meeting, Orlando FL. February, 2008

Chip-Based Detection of dissolved iron in natural seawater using a siderophore-based biosensor. E. Roy and M.L. Wells AGU/ASLO Ocean Sciences International Meeting, Orlando FL. February, 2008

Fe(III) Complexing Organic Ligands Strongly Restrict Ecosystem Responses to Atmospheric Iron Enrichment in High Nitrate Low Chlorophyll Waters. M. L. Wells, C. G. Trick and W.P. Cochlan. AGU/ASLO Ocean Sciences International Meeting, Orlando FL. February, 2008

Solid State detection of dissolved iron in natural seawater using a siderophore-based biosensor. E. Roy and M.L. Wells EGU Annual International Meeting, Vienna, Austria. April, 2008

Fe(III) Complexing Organic Ligands and Their Regulation of Ecosystem Response to Atmospheric Iron Enrichment of High Nitrate Low Chlorophyll Waters. Wells, M. L, Trick C. G. and Cochlan, W. P.. European Geophysical Union, General Assembly, Vienna, Austria, April 2007.

Evidence for Biological Control of Fe(II) Oxidation Rates in Surface Waters of the Eastern and Western Subarctic Pacific. Roy, E., Wells, M.L., Cochlan, W.P. and Trick, C.G.. ASLO Aquatic Sciences Meeting, Santa Fe, NM, February, 2007.

Published Abstracts (cont.)

Effects of Photobleaching on the Colloidal Fraction of Marine Chromophoric Dissolved Organic Matter. Boehme, J. R. and Wells, M.L. ASLO Aquatic Sciences Meeting, Santa Fe, NM, February, 2007.

Seasonal Changes in Colloidal Chromophoric Dissolved Organic Matter in the Damariscotta River Estuary, Maine. Floge, S.A.. and Wells, M. L. ASLO Aquatic Sciences Meeting, Santa Fe, NM, February, 2007.

Molecular Underpinnings for the Acclimation of Large and Small Diatoms to Iron Limiting Conditions. Pritchard, L. Hughes, M., Wells, M.L., and Jenkins, B. ASLO Aquatic Sciences Meeting, Santa Fe, NM, February, 2007.

Lighting up Cell Proteins with Quantum Dots. Orcutt, K.M., Gundersen, K., Wells, M.L., Sieracki, M.E., and Smith, J.G.. ASLO Aquatic Sciences Meeting, Santa Fe, NM, February, 2007.

Domoic Acid Production is not linked to silicate limitation in natural populations of Pseudo-nitzschia. Cochlan, W. P., Wells, M. L., Trainer, V. L., Trick, C. G., Lessard, E. J. and Hickey, B. M. 12th International Conference on Harmful Algae, Copenhagen, September, 2006.

The evolution of a highly toxic Pseudo-nitzschia bloom in the Juan de Fuca Eddy in the Pacific Northwest. Lessard, E. J., Trick, C. G., Trainer, V. L., Cochlan, W. P., Hickey, B. M. and Wells, M. L. 12th International Conference on Harmful Algae, Copenhagen, September, 2006.

The nature of the Juan de Fuca eddy: the rise and fall of domoic acid to the Washington State coast. Trainer, V. L., Cochlan, W. P. Hickey, B. M., Lessard, E. J., MacFadyen, A., Trick, C. G., and Wells, M. L. 12th International Conference on Harmful Algae, Copenhagen, September, 2006.

Determining the Effects of Fe(III) Complexing Ligands on Phytoplankton Community Structure Using a Sea-Going Continuous Culture Incubator. Pickell, L. D., Wells, M.L., Trick, C.G. Cochlan, W.P., Herndon, J. ASLO/AGU/TOS Ocean Sciences Meeting, Honolulu, HI, February, 2006.

Copper-assisted iron acquisition in iron limited regimes. Wells, M.L. Trick, C.G., Cochlan, W.P. and Betts, J. N. ASLO/AGU/TOS Ocean Sciences Meeting, Honolulu, HI, February, 2006.

Trick, C.G. Cochlan, W.P., and Wells, M.L. Complexity of grow-out experiments: further iron stimulation of communities from iron fertilized mesoscale patch. ASLO/AGU/TOS Ocean Sciences Meeting, Honolulu, HI, February, 2006.

Yoshimura, T. Nishoka, J., Saito, H., Takeda, S., Tsuda, A. and Wells, M.L.. Distributions of phosphorus fractionated into particulate and dissolved with organic and inorganic forms in North Pacific surface waters. ASLO/AGU/TOS Ocean Sciences Meeting, Honolulu, HI, February, 2006.

A seasonal eddy and a coastal upwelling region: Insights to HAB development. Trainer, V.L., Hicky, B.M. Cochlan W.P., Lessard, E., Trick, C.G., and Wells, M.L. TOS/IOC/UNESCO Harmful Algal Boom Conference, Paris, France June, 2005.

The link between iron, copper and diatom toxicity. Wells, M.L., Trick, C.G., Cochlan, W.P., Hughes, P., and Ladizinsky, N. TOS/IOC/UNESCO Harmful Algal Boom Conference, Paris, France June, 2005.

Domoic acid: The synergy of iron, copper and the toxicity of diatoms. Wells, M.L. Trick, C.G. Cochlan, W.P. Hughes, M.P., and Trainer, V.L. ASLO Summer Meeting, Santiago de Compostela, Spain, June, 2005.

The Synergy Of Iron, Copper And The Toxicity Of Diatoms. Wells, M. L., Trick, C. G., and Hughes M. P. ASLO/TOS Ocean Research Conference. Honolulu, HI, February 2004.

Iron Limitation and copper effects in the Juan de Fuca eddy. Trick, C.G., Wells, M. L., Cochlan, W. P., Pickell, L., McClintock, L. ASLO/TOS Ocean Research Conference. Honolulu, HI, February 2004.

Fluorescence variations of marine and terrestrial colloids: examining size fractions of chormophoric dissolved organic matter in the Damariscotta river estuary. Boehme, J. and Wells, M. L.. ASLO/TOS Ocean Research Conference. Honolulu, HI, February 2004.

Published Abstracts (cont.)

Iron limitation of natural populations associated with the Pacific Northwest ECOHAB Pseudonitzschia blooms. M.J. Wells, W. P. Cochlan and C.G. Trick. 2nd National Harmful Algal Bloom Symposium, Woods Hole Oceanographic Institution, December, 2003.

Evaluation of cELISA and an analytical tool for measuring sub-nanomolar concentrations of domoic acid in phytoplankton and seawater. Wells, M. L., Garthwaite, I. Hughes, M. P., Ross, K. M., Briggs, L. and Towers, N. R. Tenth International Conference on Harmful Algae, St. Pete's Beach, 2002.

Size Distributions of Colloidal CDOM in Coastal Waters as Determined by Flow Field-Flow Fractionation. M. L Wells, Ocean Sciences, Honolulu, HI, 2002

Iron Availability and the Toxicity of *Pseudo-Nitzschia* spp.: Results From Monoclonal and Natural Population Cultures During the 1998 Monterey Bay Bloom. M. L. Wells, M. T. Maldonado, and C. G. Trick, Aquatic Sciences, Albuquerque NM, 2001.

Denitrification in an Antarctic Lake: A Role For Trace Metal Regulation? B. B. Ward, J. Granger, M. L. Wells and M. T. Maldonado, Aquatic Sciences, Albuquerque NM, 2001.

Changes In CDOM Composition During A Copepod Grazing Experiment in the Gulf of Mexico. J. L. Urban-Rich and M. L. Wells, Aquatic Sciences, Albuquerque NM, 2001.

Size Characterization of Colloidal CDOM in Surface Waters off the Mississippi Plume by Flow Field-Flow Fractionation. M. L. Wells, Aquatic Sciences, Albuquerque NM, 2001.

The Role of Trace Metals ion Toxigenic Pseudo-Nitzschia Blooms. M. Maldonado, M. Hughes, E. Rue, and M. Wells. 9th Conference on Harmful Algal Blooms, Tasmania, Feb 7-11, 2000

Using Xenosiderophores to Manipulate the Cellular Iron Status of Eukaryotic and Prokaryotic Phytoplankton. R. El-Sabaawi, C. G. Trick, M. L. Wells. Ocean Sciences Meeting, Jan 24-28, 2000.

The Effect of Bioactive Metals on Phytoplankton in Nearshore Waters. Mark L. Wells, 8th Annual Conference of PICES, Vladivostok, October 9-15th, 1999.

On-line Extraction for the Determination of Trace metals in Seawater Using High Resolution ICP-MS. Mark L. Wells, European Winter Conference on Plasma Spectroscopy, Pau, France, January 9-15,1999.

Fe manipulation experiments: Decreasing Fe availability in natural population cultures, M. L. Wells, 1998. ASLO/AGU Ocean Sciences Meeting, San Diego, CA

Soluble Fe in IronEx II: Implications for natural blooms in the equatorial Pacific, M. L. Wells and G.K. Vallis, 1997. ASLO Spring Meeting, Santa Fe, NM.

The formation and behavior of colloidal iron during IronEx II and its influence on other bioactive metals, M. L. Wells, 1996. ASLO/AGU Ocean Sciences Meeting, San Diego, CA

The distribution of particulate and colloidal metals in surface waters of Narragansett Bay, RI., M. L. Wells, G. Smith and K. W. Bruland, 1996. ASLO/AGU Ocean Sciences Meeting, San Diego, CA

Iron limitation and the Cyanobacterium *Synechococcus* in equatorial Pacific waters. M. L. Wells, N. M. Price and K. W. Bruland, 1994. ASLO/AGU Ocean Sciences Meeting, San Diego, CA

Wells, M. L., and E.D. Goldberg. The Distribution of Colloids in the North Atlantic. 1994 American Chemical Society National Meeting, San Diego, CA

Spectral dependence of iron photoreduction in the oceans. M. L. Wells, L. M. Mayer, O. F. X. Donard, M. M. de Souza Sierra and S. G. Ackleson, 1990. ASLO/AGU Ocean Sciences Meeting, New Orleans, LA.

Photoinduced changes in the lability of iron in seawater and its significance to phytoplankton. M. L. Wells & L. M. Mayer, 1988. ASLO/AGU Ocean Science Meeting, New Orleans, LA.

The lability of dissolved and particulate iron in marine waters. M. L. Wells & L. M. Mayer, 1988. ASLO/AGU Fall Meeting, San Francisco, CA.

Photoconversions of colloidal iron oxyhydroxides in seawater. M. L. Wells, L. M. Mayer and R. R. L. Guillard, 1989. (Invited speaker) Special symposium, Aqueous Chemistry and Geochemical Cycles of Iron and Manganese, American Chemical Society Fall National Meeting, Miami, FL.

List of Invited Presentations

Ocean Acidification and Iron Availability; A Natural Multiple Stressor Experiment in Iron Limited Upwelling Waters. Satellite Ocean Environment Dynamics, Second Institute of Oceanography, Hangzhou, China, 2017

Harmful Algal Blooms and Climate Change: What do we Know and How Can We Best Proceed? Nagasaki University, 2016

Ocean Acidification: Effects on Carbon and Fe Availability to Phytoplankton, Nagasaki University, 2016

Harmful Algal Blooms and Climate Change: Challenges and Paths for Moving Forward, Plenary, ISSHA, Brazil, 2016

Ocean Acidification. Environment and Health Summer School on Oceans and Human Health, WHOI, 2014

Harmful Algal Blooms and Climate Change. Environment and Health Summer School on Oceans and Human Health, Hong Kong, 2014

Measuring Iron and its Meaning in the Oceans: A perspective. First Xiamen Symposium on Marine Environmental Sciences, 2014

Iron bioavailability: Where are we and where do we need to go? Iron Bioavailability in the Surface Ocean ESF COST Meeting, IFM-GEOMAR, Kiel, Germany (2010)

The Toxicity of Diatoms. M.L. Wells. Gordon Research Conferences, Mycotoxins and Phycotoxins, Waterville, ME 2007.

The Chemical Speciation of Iron in Seawater and Its availability to Phytoplankton. Department of Energy Carbon Sequestration Workshop, Belmont Manor House and Conference Center, Elkridge, MD, 2005

Iron Distributions and Chemical Speciation during the SEEDS II Mesoscale Iron Enrichment Study. North Pacific Marine Sciences Organization (PICES) Iron Fertilization Experiment Panel. Hawaii, HI. 2004.

Experimental Plan – SEEDS II Iron Enrichment Experiment in the Western Subarctic Pacific. North Pacific Marine Sciences Organization (PICES) Iron Fertilization Experiment Panel. Victoria, B.C. 2003

The Synergistic Influence of Cu and Fe on Pseudo-nitzschia sp. Growth and Domoic Acid Production. University of Tokyo, Department of Biology, April, 2003

Colloids and Colloid Processes in Oceanic Waters. M. L. Wells. Natural Waters and Water Technology EuroConference on Colloids in Natural Waters. Spa, Belgium, 2002.

The Effect of Trace Metals on Domoic Acid Production by Toxigenic Diatoms. M.L. Wells. University of Massachusetts at Boston, Boston, MA November 21, 2001.

The Use of Field Flow Fractionation as a Tool for Partitioning CDOM into a Continuum of Colloidal Size Classes. M. L. Wells. Office of Naval Research CDOM Workshop, Albuquerque, NM, February, 2001.

Fe dynamics during IronEx II: The premature loss of Fe availability within the enriched patch during the phytoplankton bloom. M. L. Wells, PICES-IFEP Planning Workshop for Iron Fertilization in the N. Pacific. Tsukuba, Japan, October, 19, 2000

The Effect of Iron and Cu on Domoic Acid Production by Toxigenic Pseudo-nitzschia. M. L. Wells, PICES Working Group 15 – Harmful Algal Blooms. Hakadote, Japan, October, 21, 2000

List of Invited Presentations (cont.)

The Effect of Bioactive Metals on Phytoplankton in Nearshore Waters: A Case for Toxigenic *Pseudo-Nitzschia sp.* M. L. Wells, PICES International Meeting, Vladivostok, Russia, Oct 21, 1999

On-line Extraction for the Determination of Trace metals in Seawater Using High Resolution ICP-MS. M. L. Wells. Winter Plasma Conference, Pau, France, January 11, 1999.

The Effect of Bioactive Metals on Phytoplankton in Nearshore Waters. M. L. Wells. 8th Annual Conference of PICES, Vladivostok, October 9-15th, 1999.

The Effect of Tectonic Processes in Papua New Guinea on Past Productivity in the Eastern Equatorial Pacific. M. L. Wells. Tiburon Center for Marine Research, December 11, 1998

Desferal as a Tool for Regulating Iron Availability in Nearshore Waters. M. L. Wells, Center for Bioinorganic Chemistry (CEBIC), Princeton, June 13-16, 1999.

The Potential Role of Colloids in Contributing to Variable CDOM Signatures in Seawater. M. L. Wells. Office of Naval Research CDOM Workshop, Baltimore, MD, November 2-6, 1998.

Manipulating Fe Availability in Nearshore Seawaters: a Tool for Ascertaining How Subtle Changes in Fe Availability Affect Marine Ecosystems. M. L. Wells and Charles G. Trick. Special Workshop of SCOR, Amsterdam, November 11-19, 1998.

The Effect of Colloids on the Variable CDOM signatures in Seawater. M. L. Wells. Office of Naval Research CDOM Workshop, Baltimore, MD, November, 1997.

Woods Hole Oceanographic Institution, Department of Chemistry, June, 1993.

California Institute of Technology, Department of Environmental Engineering Science, November, 1993.

University of Miami, Rosenstiel School of Marine and Atmospheric Science, November, 1993

University of British Columbia, Department of Oceanography. The marine chemistry of iron and its availability to phytoplankton. April, 1992.

University of Victoria, School of Earth and Ocean Sciences. Small colloids in seawater and their potential role in the marine biogeochemical cycling of carbon and metals. April, 1992.

Rutgers University, Institute of Marine and Coastal Sciences. Small colloids in seawater. October, 1992.

University of Washington, School of Oceanography. The distribution and abundance of small colloids in seawater. November, 1991.

Institute of Ocean Sciences, Sydney, B. C. The biological availability of iron in seawater. November, 1991.

Meeting Organizer and Session Chair

Harmful Algal Blooms and Climate Change, Scientific Symposium, Gothenburg, Sweden, May 2015.

Emerging Issues in HABs Research. American Society of Limnology and Oceanography, Granada, Spain. February 2015

Ecological and Human Social Analyses and Issues Relating to Integrated Multi-Trophic Aquaculture. North Pacific Marine Science organization (PICES), Korea, October, 2014.

Workshop on HABs in a Changing World (PICES/ICES/IOC-GEOHAB/NOAA). Friday Harbor Laboratories, March 18-22, 2013.

Harmful Algal Blooms in a Changing World. North Pacific Marine Science organization (PICES), Khabarovsk, Russia, September, 2011.

New frontiers in biogeochemical microsensors for ocean observation. American Society of Limnology and Oceanography, Portland, OR. February 2010.

Understanding the role of iron in regulating biogeochemical cycles and ecosystem structures in the North Pacific Ocean. North Pacific Marine Science organization (PICES), Portland OR, September, 2010

Environmental factors and mechanisms leading to coral bleaching. ALSO/EGU Ocean Sciences Meeting, Nice, Fr, January, 2009

Mitigation of harmful algal blooms. North Pacific Marine Science organization (PICES), Korea, September, 2009

Using Trace Elements and Isotopes to Study Open-Ocean Biogeochemistry. ASLO/AGU/TOS Ocean Sciences Meeting, February, 2006

Marine Environmental Quality Workshop on the Review of Selected Harmful Algal in the PICES Region. North Pacific Marine Science organization (PICES), September, 2005

Gordon Research Conference — Chemical Oceanography, Invited Session Chair, August, 2002

Gordon Research Conference — Environmental Sciences: Water. Session Chair. June, 1998.

"The Colloidal State in Seawater". Geochemistry Symposium, 1994 American Chemical Society National Meeting, San Diego, CA.

"Iron Speciation and its Biological Availability in Seawater: A Workshop". An international workshop at Bermuda Biological Station for Research, May 1994 (Co-Chaired with Prof. Ken Bruland).

Edited Journals

Harmful Algae. Harmful Algal Blooms in a Changing World (in prep.) M. Wells and C. Gobler.

Deep-Sea Research II. The biogeochemical and ecological responses to iron enrichment during SEEDS II in the western subarctic Pacific. 2009 Co-Editors. A. Tsuda, M.L. Wells and H. Saito. Volume 56: 2731-2958

Marine Chemistry Special Issue. 1995. The Chemistry of Iron in Seawater and its Interaction with Phytoplankton. Co-Guest Editors K.W. Bruland and M. L. Wells. Volume 50: 1-241

Committee memberships

External Panel to evaluate a proposal received in response to our solicitation for Management and Operation of the Ocean Observatories Initiative (OOI), June, 2017

Geosciences representative on the U.S. National Science Foundation Review Committee of the U.S. National Nanotechnology Infrastructure Network, 2009.

Member of PICES Marine Environmental Quality Section — Harmful Algal Blooms (2003-Present)

Member of PICES (Pacific International Committee of Environmental Sciences) Working Group 15 – Ecology of Harmful Algal Blooms (HABs) in the North Pacific

Member of PICES ((Pacific International Committee of Environmental Sciences) Working Group 18 – Role of Iron in Carbon Sequestration in the North Pacific)

Member of SCOR (Scientific Committee on Oceanic Research) Working Group 109 – The Biogeochemistry of Iron in Seawater.

Panels and Workshops

NSF NNIN Workshop on Nano-enabled Sensing Microsystems for Geosciences, 2010
Iron Bioavailability in the Surface Ocean, ESF COST Meeting (1 and 2 Feb. 2010) IFM-GEOMAR, Kiel, Germany
Workshop on Oceanography in 2025, ONR and hosted by The National Academies of Science, January, 2009.
NSF Workshop on an Implementation plan on Nanotechnology and Environmental Sensors, Nov. 2008 (organizer)
NSF National Nanotechnology Infrastructure Network review, April, 2008
NSF Partnership for International Research and Education panel, January, 2007
US Subglacial Antarctic Lake Exploration (SALE) committee for limnology and biogeochemistry 2005
ICES/IOC/IMO Working Group on Ballast and other Ship Vectors, 2005
ICES/IOC/IMO Working Group on Ballast and other Ship Vectors, 2004
NOAA Oceans and Human Health Initiative Panel, June, 2004
NSF Nanotechnology Panel, June, 2003, 2004, 2005
US JGOFS Iron Workshop, Monterey Bay Aquarium Research Institute. June, 2002
US JGOFS Equatorial Pacific Synthesis and Modeling Workshop. Darling Marine Center, ME, September 2002
NSF Polar Programs Panel, October, 2001
NSF Chemical Oceanography Panel, Multiple Years 1993-2015
NSF Biocomplexity Panel, August, 1999
PICES (Pacific International Committee of Environmental Sciences) Working Group 15 – Ecology of Harmful Algal Blooms (HABs) in the North Pacific (1999 to present)
Member of PICES ((Pacific International Committee of Environmental Sciences) Working Group 18 – Role of Iron in Carbon Sequestration in the North Pacific (1999 to present)

Awards

1992 Institute of Marine Studies Postdoctoral Fellowship, University of California, Santa Cruz
1991 Postgraduate Research Marine Chemist, Step VIII, Scripps Institution of Oceanography
1990 Postgraduate Research Marine Chemist, Step VII, Scripps Institution of Oceanography
1989 Postgraduate Research Marine Chemist, Step VI, Scripps Institution of Oceanography
1985 University Fellowship, University of Maine