

## STEVEN WRAY Wilhelm – *curriculum vitae*

*Professor and Associate Head  
Department of Microbiology  
The University of Tennessee  
Knoxville, TN 37996*

Date of Birth: July 22, 1966    Place of Birth: Shakespeare, Ontario    Citizenship: Canadian (US Permanent Resident)

### Educational History

<u>Institution</u>	<u>Program or Degree</u>	<u>Dates in Program</u>	<u>Degree</u>
University of Western Ontario	Ph.D. Plant Sciences	1990 - 1994	Ph.D.
University of Western Ontario	B.Sc. Genetics	1985 - 1989	B.Sc. (Honours)

### Employment History

<u>Rank</u>	<u>Effective Date</u>
Assistant (1998), Associate (2004), Full (2008) Professor, <i>University of Tennessee</i>	August 1, 1998
NSERC Visiting Fellow, <i>Environment Canada, AECB, Burlington, ON</i>	August 1, 1997
Postdoctoral Fellow, Department of Earth and Ocean Sciences, <i>The University of British Columbia</i>	June 1, 1996
Postdoctoral Fellow, Marine Sciences, <i>The University of Texas (Austin) Marine Science Institute</i>	March 1, 1995

### Employment History – Courtesy Appointments and Positions

<u>Rank</u>	<u>Institution</u>	<u>Department</u>	<u>Effective Date</u>
Associate Head	<i>University of Tennessee</i>	Microbiology	August 1, 2007 - present
Advisory Committee	Provasoli-Guillard National Center for Culture of Marine Phytoplankton		April 2009 - present
Adjunct Faculty	<i>University of Wisconsin - Milwaukee</i>	Biology	September 1, 2007 - present
Adjunct Faculty	<i>University of Kuopio</i>	Biotechnology	Jun 2000 – Dec 2001
Adjunct Faculty	<i>University of Tennessee</i>	Ecology and Evolutionary Biology	August 1, 1998
Adjunct Faculty	<i>University of Tennessee</i>	Genome Science and Technology	August 1, 1998
Adjunct Faculty	<i>University of Tennessee</i>	Center for Environmental Biotechnology	August 1, 1998
Lecturer	<i>University of Western Ontario</i>	Plant Sciences	Jan 1 – Apr 30, 1994
Advisory Board	<i>Bigelow Lab for Ocean Sciences</i>	Provasoli-Guillard Culture Collection of Marine Phytoplankton	Jun 2009 - present

### Awards and Commendations

2009	University of Tennessee, Chancellor's Award for Research and Creative Achievement
2000	University of Tennessee, Science Alliance Faculty Award for Research
1999	Oak Ridge Associated Universities Ralph E. Powe Junior Faculty Enhancement Award
1997	Natural Science & Engineering Research Council (Canada) Visiting Scientist Fellowship
1994	Dissertation Initiative for the Advancement of Limnology and Oceanography
1993	ASLO Travel Award
1993	Graduate Research Fellowship, The University of Western Ontario
1992	Phycological Society of America, Grant-In Aid of Research
1991,92,93	Development Bursary, North East Algal Society
1992,93	Special University Scholarship, The University of Western Ontario
1992	North East Algal Society, Robert T. Wilce Award for best paper

## **CURRENT RESEARCH GRANTS AND SUPPORT Competitive Grants and Awards from Federal Sources**

- 2005 - 2009 NSF (Chem/BioOce) OCE - 0526159. All years \$466,095; \$336,206 direct. "Development of bioluminescent bacterial bioreporters to quantify the bioavailability of Fe in seawater"
- 2005 - 2009 OHHI (NOAA) - (\$748,921 total, \$349,993 total (\$294,142 direct) to SWW). PIs GS Boyers and SW Wilhelm. "OHH 2005: Identification, characterization and inventory of novel freshwater biotoxins".
- 2005 - 2009 DOE (JGI). Determination of the genomic sequence of *Aureococcus anophagefferens*. PIs CJ Gobler and SW Wilhelm. Sequencing and automated assembly of the *A. anophagefferens* genome.
- 2006 - 2009 ECOHAB (NOAA) (\$436,967 total - \$310,618 direct to UT). PIs SW Wilhelm, T Henry, GL Boyer, R Strange, M Twiner. "Chronic toxicity and bioaccumulation of microcystins in freshwater fish".
- 2008 - 2010 NSF (ChemOce). (\$610,163 total - \$174,257 (\$141,415 direct) to UT). PIs DA Hutchins, SW Wilhelm and B Twining. "FeCycle II: Variability in plankton Fe quotas during an unamended Lagrangian experiment".
- 2008 - 2011 NSF (Engineering - Environmental Sustainability). (\$300,000 total - \$101,582 (\$80,630 direct) to UT, \$9,950 REU supplement added in 2009) PI H Paerl. coPI SW Wilhelm "Collaborative Research: Evaluating Nutrient Reductions to Control Cyanobacteria and Ensure Large Lake Sustainability: Lake Taihu (China) as a Model for North American Systems."
- 2009 - 2012 NSF (IOS) (\$458,704 (\$320,707 direct) to UT). PI SW Wilhelm, N Verberkmoes. "What makes *Microcystis* bloom? Dissecting the physiological ecology of a toxic cyanobacterium with community level proteomics"
- 2009 - 2012 NSF (BioOce) (\$499,703 total (299,800 - 216,665 direct to UT) PI SW Wilhelm. Co-PIs N Verberkmoes, JT Lennon. "Collaborative research: characterizing the constraints on virus infection of cyanobacteria"
- 2009 - 2012 NSF (Microbial Genomes) (\$599,995 total - \$275,005 to UT) PI WH Wilson, CoPI SW Wilhelm. "Decoding viral leviathans"

## **Nationally /Internationally Competitive Grants and Awards from other Sources**

- 2005 - 2009 Scientific Committee on Oceanographic Research - (\$45,000 direct funds). Funds to support a marine virus ecology working group. Chairs, M Weinbauer (Villefrenche-sur-mer, France), SW Wilhelm.
- 2007 - 2009 Ohio SeaGrant (\$116,607 - \$30,000 to UT) Phylogenetic analysis and physiological characterization of photosynthetic picoplankton in Lake Erie.
- 2009 - 2011 New York SeaGrant (108,615 - \$11,000 to UT). Winter assessment of microbial biomass and metabolism: testing the importance of winter productivity to summer hypoxia in Lake Erie.
- 2009 Gordon and Betty More Foundation - sequencing of 4 phage genomes (ca \$20,000). PI A Buchan, coPIs SW Wilhelm and WH Wilson
- 1998 - 2009 Environment Canada - ship time on the CCGS *Limnos* (with estimated value of in-kind support): 1998 - 5 days (\$26,000); 1999 - 11 days (\$57,200); 2000 - 11 days (\$57,200); 2001 - 11 days (\$62,000); 2002 - 11 days (\$69,000), 2003 - 12 days (\$84,000), 2004 - 15 days (\$108,000); 2005 - 10 days (\$75,000); 2006 - 10 days (\$130,000); 2007 - 5 days (\$65,000); 2008 - 6 days (\$78,000); 2009 - 5 days (\$65,000). Time on CCGS *Griffon* 2007 - 3 days (\$75,000), 2008 - 6 days (\$150,000), 2009 - 10 days (\$250,000). A total of 116 days or \$1,286,400 in kind support.

## **Peer Reviewed Journal Publications (of 75 peer review publications since 1994)**

- Leblanc, K., Hare, C. E., Feng, Y., Berg, G. M., DiTullio, G. R., Neeley, A., Benner, I., Sprengel, C., Beck, A., Sanudo-Wilhelmy, S. A., Passow, U., Klinck, K., Rowe, J. M., Wilhelm, S. W., Brown, C. W., and Hutchins, D. A. 2009. Distribution of calcifying and silicifying phytoplankton in relation to environmental and biogeochemical parameters during the late stages of the 2005 North East Atlantic Spring Bloom, *Biogeosciences* 6, 2155-2179.
- Cusick KD, GL Boyer, SW Wilhelm, GS Saylor 2009. Transcriptional profiling of *Saccharomyces cerevisiae* upon exposure to saxitoxin. 2009. *Environmental Science and Technology* 43:6039-6045 doi: 10.1021/es900581q
- Allender CJ, GR LeClerc, JM Rinta-Kanto, RL Small, MF Satchwell, GL Boyer, SW Wilhelm. 2009. Identifying the source of unknown microcystin genes and predicting microcystin variants by comparing genes within uncultured cyanobacterial cells. *Applied and Environmental Microbiology* 75:3598 - 3604 doi:10.1128/AEM.02448-08

- Sharma AK, K Sommerfeld, GS Bullerjahn, AR Matteson, SW Wilhelm, J Jezbera, U Brandt, W F Doolittle, MW Hahn. 2009. Actinorhodopsin genes discovered diverse in freshwater habitats and among cultivated Actinobacteria. *The ISME Journal* 3: 726-737. Doi:10.1038/ismej.2009.13
- DeBruyn JM, TJ Mead, SW Wilhelm, GS Saylor. 2009 PAH biodegradative genotypes in Lake Erie sediments: Evidence for broad geographical distribution of pyrene-degrading Mycobacteria. *Environmental Science and Technology* 43:3467-3473 doi:10.1021/es803348g
- Rinta-Kanto JM, JM DeBruyn, EA Konopko, RA Bourbonniere, GL Boyer, and SW Wilhelm. 2009. Lake Erie *Microcystis*: relationship between microcystin production, dynamics of genotypes and environmental parameters in a large lake. *Harmful Algae*. 8: 665-673. doi:10.1016/j.hal.2008.12.004
- Rinta-Kanto JM, MA Saxton, JM DeBruyn, JL Smith, CH Marvin, KA Krieger, GS Saylor, GL Boyer, SW Wilhelm. 2009. The diversity and distribution of toxigenic *Microcystis* spp. in present day and archived pelagic and sediment samples from Lake Erie. *Harmful Algae* 8: 385-394.
- Rowe JM, MA Saxton, MT Cottrell, JM DeBruyn, GM Berg, DL Kirchman, DA Hutchins and SW Wilhelm. 2008. Constraints on virus production in the Sargasso Sea and North Atlantic. *Aquatic Microbial Ecology* 52:233-244.
- Brussaard CPD, SW Wilhelm, F Thingstad, MG Weinbauer, G Bratbak, M Heldal, SA Kimmance, M Middelboe, K Nagasaki, JH Paul, DC Schroeder, CA Suttle, D Vaqué, KE Wommack. 2008. Commentary: Global scale processes with a nanoscale drive - the role of marine viruses. *The ISME Journal* 2:575-578
- Wilhelm SW and AR Matteson. 2008. Freshwater and marine viroplankton: a brief overview of commonalities and differences. *Freshwater Biology* 53: 1076-1089
- Rowe JM, JR Dunlap, CJ Gobler, OR Anderson, MD Gastrich and SW Wilhelm. 2008. Isolation of a non-phage-like lytic virus infecting *Aureococcus anophagefferens*. *Journal of Phycology* 44:71-76

### **Invited Seminars at Institutions - 33**

### **Presentations at Scientific Meetings – Invited (26), Contributed (130)**

Chair: *Scientific Committee for Oceanographic Res.* WG 126 (Marine viruses) with MG Weinbauer; Associate member: *SCOR* WG 134 (The Microbial Carbon Pump)

Participant/mentor in NIH Rise and RT McNair undergraduate mentoring programs

Associate Editor: *Limnology and Oceanography: Methods*, October 2002 – present.

Editorial Board, *Applied and Environmental Microbiology*, 2006-present.

External Advisory Board, Provasoli-Guillard National Center for the Culture of Marine Phytoplankton

Review, panel and working group service for NSF, EPA, NOAA, DOE (full list available) and multiple journals

Graduate students. Johanna Rinta-Kanto, M.Sc. 2001, PhD 2006; Melanie Eldridge PhD 2004; Shannon Pedigo, MSc 2004; Cécile Mioni, PhD 2004; Amanda Dean, MSc 2004; Julie Higgins MSc 2005; Leo Poorvin, PhD 2005; Janet Rowe, PhD 2008; Star Loar, MSc 2009.

Current PhD candidates Matthew Saxton, Audrey Matteson

Current MS candidates Laurissa Caudill

UT Undergraduate Assistants 28 since 1999 Visiting Undergraduates 7 since 1999

Pre-collegiate Scholars 3 since 2007 Science/Journalism Interns 3 since 2008