

# **Ann L. St. Amand, Ph.D., CLP**

PhycoTech, Inc  
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## **Phycologist & Certified Lake Professional**

### **Professional Experience**

**President.** PhycoTech, Inc. 1990-Present. St. Joseph, Michigan. Provide identification and enumeration of suspended and attached algal, zooplankton and bacterial samples utilizing a unique, permanent mounting technique. Also provide photographic, statistical and interpretive services involving algal samples and ecological data.

**Research Associate.** University of Notre Dame. 1991-1995. Department of Civil Engineering/Geological Sciences. Involved in project relating composition and biomass of periphytic biolayer in artificial stream ecosystems to PCB transfer within stream sediments.

**Research Associate.** University of Notre Dame. 1989-1991. Department of Civil Engineering. Involved in project relating groundwater quality to surface water quality including preliminary data acquisition and grant submission. Also involved in data analysis for a collaborative project on the environmental effects of oil-field brine application for road maintenance.

**Faculty.** Practicum in Aquatic Ecology, University of Notre Dame Environmental Research Center. June 1990. Taught limnology section of summer field course.

**Research Assistant.** University of Notre Dame. 1988-1989. Identified and enumerated phytoplankton samples from three northern Wisconsin lakes.

**Teaching Assistant.** University of Notre Dame. 1985-1988.

**Field Intern.** The Nature Conservancy (Indiana Chapter). November 1984-January 1985. Habitat management and landowner responsibilities within wetland and prairie habitats.

### **Education**

Ph.D. University of Notre Dame, Notre Dame, Indiana. Aquatic Biology Program. Defense: April 12, 1990. Dissertation: Mechanisms Controlling Metalimnetic Communities and the Importance of Metalimnetic Phytoplankton to Whole Lake Primary Productivity.

B.S. Purdue University, West Lafayette, Indiana. 1984. Ecology, Evolutionary, and Population Biology.

Indiana University-Purdue University at Indianapolis, Indianapolis, Indiana. 1980-1982.

### **Certifications**

Certified Lake Professional (2003 to present) North American Lake Management Society

# **Ann L. St. Amand, Ph.D., CLP**

The Only North American Phycologist to take part in the European External Quality Assessment Trials Phytoplankton in Accordance with DIN38402 A 45; Certificate Received November 2013.

## **Honors**

Partner in Education, Berrien RESA, Awarded October, 2016

Cornerstone Chamber of Commerce: Entrepreneur of the Year, Commercial, 2008

Environmental Business Journal: Silver Medal: Consulting and Engineering award, 2008

Secchi Disk Award. North American Lake Management Society. 2006.

Merlin Hanson Challenge Award, Cornerstone Alliance. February 2000.

Corporate Award, North American Lake Management Society. November 1999.

Best Student Paper. North American Lake Management Society. November 1988.

Graduate Student Travel Award. North American Lake Management Society. 1988.

Arthur J. Schmitt Dissertation-Year Fellowship - 1988/1989. University of Notre Dame.

Best Student Paper. North American Lake Management Society. November 1987.

IBM Travel Fund for Women. University of Notre Dame. 1987.

## **Grants**

Saint Joseph School Foundation, FIRST Lego League Brown Elementry 2015-16 Grant, February 2016

Heart of Cook. Education Grant. Weather Station for Upton Middle School, April, 2014

Saint Joseph School Foundation, Science Olympiad and Lego Robotics, Upton Middle School, November 2012; April 2014

Southwestern Michigan Steelheaders, Salmon in the Classroom, Upton Middle School, December 2012

Heart of Cook. Education Grant. Wetland Laboratory, Brown Elementary School, April, 2012

Michigan Department of Natural Resources and Environmental Control, Tree Planting Grant, Upton Middle School, 2010

Heart of Cook. Education Grant. UpStream Project, Upton Middle School. May, 2007/2008/2010/2012.

Berrien County Recycling Grant, Upton Middle School, December 2007/2010.

Florida Department of Environmental Protection: Research Grant. Joint project between

# Ann L. St. Amand, Ph.D., CLP

PhycoTech and CyanoLab. Investigations in the biology and the ecological impact of *Cylindrospermopsis raciborskii* in Florida Lakes. September 2005.

National Science Foundation: Small Business Innovation Research Grant. 1997.  
Computerized Algal Identification System. Phase I.

National Science Foundation: Research Planning Grant. 1991. Role of the periphytic biolayer in mediating the transfer and transformation of PCB's within stream sediments.

National Science Foundation: Doctoral Dissertation Improvement Grant. 1988.  
Alternate states of metalimnetic systems resulting from cascading trophic interactions.

Sigma Xi. 1988. Variation in primary productivity and biomass accumulation in metalimnetic and epilimnetic algal populations.

Indiana Academy of Science. 1987. Species-specific growth and loss rates within metalimnetic algal populations.

## Presentations

St. Amand, A: 2016 Collection, Identification and Ecology of Freshwater Algae, Illinois EPA, (3-day workshop)

St. Amand, A 2014 Identification Ecology and Control of Nuisance Freshwater Algae in Lakes and Streams. Indiana Lakes Management Annual Conference

St. Amand, A 2014 Response of the algal community in Boulder Basin, Lake Mead to the introduction of Quagga Mussels and reduced water levels. Lake Mead Science Symposium 2014

St. Amand, A: 2011, 2012, and 2013, 2014 and 2016 Collection, Identification and Ecology of Freshwater Algae, PhycoTech, Inc. (2-day workshop)

St. Amand, A: 2012, and 2013, 2014 and 2016 Collection, Identification and Ecology of Freshwater Algae Advanced Course including Blue-Greens and toxin producers, PhycoTech, Inc. (3-day workshop)

St. Amand, A, Wagner, K, Rosen, B, Chapman, A: 2012, Collection, Identification and Ecology of Freshwater Algae Advanced Course including Blue-Greens and toxin producers. Annual Meeting of the North American Lake Management Society

St. Amand, A 2012 Identification Ecology and Control of Nuisance Freshwater Algae in Illinois lakes and streams. Illinois Lake Management Association

St. Amand, A, Peter Leavitt, Joseph Eilers, and Linda Bunting (co-authors) 2011, An Introduction to Microscopy in Paleolimnology: Opportunities and Challenges for Using Soft Algae in Addition to Diatom and Chrysophyte Biomarkers. Annual Meeting of the North American Lake Management Society.

St. Amand, A. and K. Wagner (Co-Chairs). 1991-2011, 2013-2016 Algal Identification Workshop. Annual Meeting of the North American Lake Management Society.

## Ann L. St. Amand, Ph.D., CLP

- Graham, J.L., KA Loftin, BH Rosen, A St Amand, 2010. Guidelines for Design and Sampling for Cyanobacterial Toxin and Taste-and-Odor Studies in Lakes and Reservoirs, National Water Quality Monitoring Conference Workshop.
- St. Amand, A; J.L. Graham, J. R. Jones, 2009 Occurrence of microcystin-producing Cyanophyta along a Midwestern United States nutrient gradient, Annual Meeting of the North American Lake Management Society.
- St. Amand, A. 2007. Multiple Data Analysis Techniques and Challenges for Analyzing Phytoplankton Data from the National Lakes Survey, Summer 2007. 20th Annual National Conference Enhancing the States' Lake Management Programs: Interpreting Lake Quality Data for Diverse Audiences. April 24-27, 2007 Chicago, IL.
- St. Amand, A. 2006. Occurrence and Toxicity of *Cylindrospermopsis* and other toxigenic blue-greens in the Midwest. Illinois Lake Management Association Annual Meeting. March, 2006.
- St. Amand, A., Graham, J. and Jones, J. 2005. Co-Chairs. Special Session: Toxic Freshwater Cyanobacteria – Global Perspectives on North American Occurrence and Regulation. International Symposim of the North American Lake Management Society. November 9, 2005.
- St. Amand, A., Dyble, J., Chapman, A., and Eilers, J. 2005. Efficacy of Molecular DNA Methods for Confirming Species Identifications on Morphologically Variable Populations of Toxin Producing Anabaena (Nostocales). Special Session: Toxic Freshwater Cyanobacteria – Global Perspectives on North American Occurrence and Regulation. Ann St. Amand, Co-Chair. International Symposim of the North American Lake Management Society. November 9, 2005.
- Eilers, J.M. and St. Amand, A. 2005. Multiple Scenarios for Fisheries to Increase Potentially Toxin Producing Cyanobacteria Populations in Selected Oregon Lakes. EPA ISOC-HAB meetings, Raleigh, NC. September 7, 2005.
- St. Amand, A., Hoover, R., Jermanb, G., and Rozanov, A. 2005. Morphology and Elemental Composition of Recent and Fossil Cyanobacteria. Proceedings of the Annual Symposium of the International Society for Optical Engineering, SPIE, July 31, 2005.
- St. Amand, A. and K. Wagner. 2003 Water quality factors driving blue-green algal blooms in lakes with relatively low nutrient concentrations. Annual Meeting of the North American Lake Management Society.
- St. Amand, A. 2003. *Cylindrospermopsis raciborskii* and its distribution changes across the US. Annual Meeting of the North American Lake Management Society.
- St. Amand, A. and K. Wagner. 2003. Ecology and Control of Nuisance Algae workshop. Annual Meeting of the North American Lake Management Society.
- St. Amand, A. and J. M. Eilers. 2002. Blue-green akinetes from sediment cores as a tool for assessing water quality changes. Annual Meeting of the North American Lake Management Society.

# Ann L. St. Amand, Ph.D., CLP

- St. Amand, A. 2002. *Cylindrospermopsis raciborskii*: Distribution changes over the last decade across the United States and Implications for Water Quality in the Midwest. Meetings of the Midwest Aquatic Plant Management Society.
- St. Amand, A. 2001. *Cylindrospermopsis raciborski*: Distribution, Ecology and Implications for Drinking Water Supplies and Recreational Use. Indiana Department of Environmental Management, meeting of the Task Force on Toxic Blue-Green Algae.
- Wang, H., St. Amand, A., and Gray, K.A. 1992. Role of the periphytic biolayer in mediating the transfer and transformation of PCB's within stream sediments. Hazardous Waste Conference, Center for Bioengineering and Pollution Control, University of Notre Dame.
- St. Amand, A.L., P.A. Soranno, and S.R. Carpenter. 1989. Nutrient cycling dynamics associated with manipulations in fish communities. Annual Meeting of the International Association for Great Lakes Research.
- St. Amand, A.L., and S.R. Carpenter. 1989. Species-specific responses to nutrient regeneration among metalimnetic and epilimnetic algae. Annual Meeting of the Ecological Society of America.
- St. Amand, A.L., P.A. Soranno, and S.R. Carpenter. 1988. Nutrient deficiency indicators: Growth bioassays vs. physiological indicators for assessing ecosystem stress. Annual Meeting of the North American Lake Management Society.
- St. Amand, A.L. and S.R. Carpenter. 1988. Metalimnetic and epilimnetic algae: Differences in nutrient limitation and grazing response when exposed to varying assemblages of zooplankton. 1988 Annual Meeting of the Ecological Society of America.
- St. Amand, A.L. and S.R. Carpenter. 1987. Variable responses of *Anabaena circinalis* to grazing. Annual Meeting of the North American Lake Management Society.
- St. Amand, A. and S.R. Carpenter. 1987. Metalimnetic algae: Species specific growth and loss rates. Annual Meeting of the American Society of Limnology and Oceanography.

## Publications

- Bunting, L., P.R. Leavitt, B. Wissel, K.R. Laird, B.F. Cumming, A. St. Amand, and D.R. Engstrom, 2016 Sudden ecosystem state change in Lake Winnipeg, Canada, caused by eutrophication arising from crop and livestock production during the 20th century; *Limnology & Oceanography*. In press
- Carey, C.C., Hanson, P.C., Lathrop R.C., St. Amand, A. L., 2016. Using Wavelet Analyses to Examine Variability in Phytoplankton Seasonal Succession and Annual Periodicity; *J. Plankton Res.* 38(1): 27–40
- Rosen, B.H., and St. Amand, A., Field and Laboratory Guide to Freshwater Cyanobacteria Harmful Algal Blooms for Native American and Alaska Native Communities: U.S. Geological Survey Open-File Report 2015–1164, 44 p.
- St Amand, A.L. 2014. A Winter Wonderland of Algae. *LakeLine*. 34 (4) 38-43

# Ann L. St. Amand, Ph.D., CLP

- St. Amand AL, Roefer P, LaBounty JF, Tietjen T, Gerweck, J. 2014. Response of the Algal Community in Boulder Basin, Lake Mead to the Introduction of Quagga Mussels and Reduced Water Levels. *Journal of Lake Reservoir. Management. In preparation.*
- Roy, A., Rhea, L., Mayer, A., Shuster, W., Beaulieu, J., Hopton, M., Morrison, M., and St. Amand, A. 2013. How much is enough? Minimal Responses of Water Quality and Stream Biota to Partial Retrofit Stormwater Management In a Suburban Neighborhood. *PLoS ONE*: January 17, 2014 DOI: 10.1371/journal.pone.0085011
- Bunting, L., P.R. Leavitt, B. Wissel, M.D. Graham, K.R. Laird, A. St. Amand, B.J. Hann, and D.R. Engstrom. 2012. Eutrophication of the north basin of Lake Winnipeg, Canada. Final report to Manitoba Conservation and Water Stewardship, and Environment Canada Lake Winnipeg Basin Stewardship Program, April 2012. 46 pp.
- St Amand, A.L. 2011. How Algae Fit Into Food Webs. *LakeLine*. 31(2): 12-18.
- St Amand, A.L. 2010. Chapter 7: Chlorophyta. *AWWA Algae: Source to Treatment, Algal Manual M57*. pp. 147-166.
- Graham, J. L.; J.M. Jacoby; A St Amand. 2009. The NALMS Blue-Green Initiative. *LakeLine*. 29(2): 12-15.
- Eilers, J. M.; Loomis, D.; Amand, A. St.; Vogel, A.; Jackson, L.; Kann, J.; Eilers, B.; Truemper, H.; Cornett, J.; Sweets, R. 2007. Biological effects of repeated fish introductions in a formerly fishless lake: Diamond Lake, Oregon, USA. *Fundamental and Applied Limnology/Archiv fur Hydrobiologie*, Volume 169, Number 4, pp. 265-277(13).
- St. Amand, A., J. Dyble, M. Aubel, A. Chapman and J. Eilers. 2007. Efficacy of molecular DNA methods for confirming species identifications on morphologically variable populations of toxin-producing *Anabaena* (Nostocales). *Lake and Reservoir Management*. 23(2):193 - 202
- St. Amand, A. and A. Chapman. 2007. Using Plankton Data. *LakeLine*. 27 (1):34 - 40.
- Holland, T. A., St. Amand, and G. Good. 2006. Otter Lake '05—A Successful Response. *LakeLine*. 26(2):52 – 56.
- St. Amand, A., Hoover, R., Jermanb, G., and Rozanov, A. 2005. Morphology and Elemental Composition of Recent and Fossil Cyanobacteria. *Proceedings of the Annual Symposium of the International Society for Optical Engineering, SPIE*, July 31, 2005. In Press.
- St. Amand, A. & Wagner, K. (2004). Stalking slime: The value of monitoring your lake. *LakeLine*, 24 (1), 14-16.
- Eilers, J. M., Kann, J., Cornett, J., Moser, K., & St. Amand, A. (2004). Paleolimnological evidence of change in a shallow, hypereutrophic lake: Upper Klamath Lake, Oregon USA. *Hydrobiologia*, 520, 7-18.
- Eilers, J. M., & St. Amand, A. (2004). *Recent paleolimnology of Blue Lake, OR*. Report to the Oregon Department of Fish & Wildlife. Roseburg, Oregon.

## Ann L. St. Amand, Ph.D., CLP

- Kostel J. A., Gray K. A., & St. Amand A. L. (2003). The impact of metal and organic contaminants on the structure of periphyton in lotic sediments: Observations at various scales. *International Journal of Sediment Research*, 19 (2), 227-235.
- St. Amand, A. (2002). *Cylindrospermopsis*: An invasive toxic alga. *LakeLine*, 22 (1), 36-38.
- Havens, K. E., Beaver, J. R., East, T. E., Rodusky, A. J., Sharfstein, B., St. Amand, A., & Steinman, A. D. (2001). Nutrient effects on producers and consumers in the littoral plankton and periphyton of a subtropical lake. *Archiv fur Hydrobiologie*, 152, 177-201.
- Eilers, J. M., Beaver, J., St. Amand, A., & Cornett, J. (2001). *Historical changes of zooplankton and cyanobacteria in Diamond Lake, Oregon, based on analysis of the sediment record*. Report to the Oregon Department of Fish & Wildlife. Roseburg, Oregon.
- Frost, T. M., Descy, J. P., DeStasio, B. T., Gerrish, G., Hood, J., Hurley, J. P., & St. Amand, A. L. (2000). Evaluations of phytoplankton communities using varied techniques: A multimedia comparison of lakes in Northern Wisconsin USA. *Verhandlungen Internationale Vereinigung für theoretische und angewandte Limnologie*, 27, 1023-1030.
- Wang, H., Kostel, J. A., St. Amand, A. L., & Gray, K. A. (1999). The response of a laboratory stream system to PCB exposure: Study of periphytic and sediment accumulation patterns. *Water Research*, 33 (18), 3749-3761.
- Kostel, J., Wang, H., St. Amand, A. L., & Gray, K. A. (1999). Use of a novel laboratory stream system to study the ecological impact of PCB's in a periphytic biolayer. *Water Research*, 33 (18), 3765-3748.
- Cottingham, K. L., Carpenter, S. R., & St. Amand, A. L. (1998). Responses of epilimnetic phytoplankton to experimental nutrient enrichment in three small seepage lakes. *Journal of Plankton Research*, 20, 1889-1914.
- St. Amand, A. (1995). Algae: Nature's artwork. *LakeLine*, 15 (3), 10-11.
- St. Amand, A. L. (1994). A photographic key to the algae of the University of Notre Dame Environmental Research Center. University of Notre Dame. Ongoing. St. Amand, A. (1995). Algae: Nature's artwork. *LakeLine*, 15 (3), 10-11.
- St. Amand, A., & Carpenter, S. R. (1993). Plankton vertical structure. Cascading Trophic Interactions. In S. R. Carpenter & J. F. Kitchell, (Eds.), *The Trophic Cascade in Lakes*. Cambridge, UK: Cambridge University Press.
- Carpenter, S. R., Morrice, J., Elser, J. J., St. Amand, A., & MacKay, N. A. (1993). Phytoplankton community dynamics. Cascading Trophic Interactions. In S. R. Carpenter & J. F. Kitchell, (Eds.), *The Trophic Cascade in Lakes*. Cambridge, UK: Cambridge University Press.
- Carpenter, S. R., Morrice, J., Soranno, P. A., Elser, J. J., MacKay, N. A., & St. Amand, A. (1993). Dynamics of primary production. Cascading Trophic Interactions. In S. R. Carpenter & J. F. Kitchell, (Eds.), *The Trophic Cascade in Lakes*. Cambridge, UK: Cambridge University Press.

# Ann L. St. Amand, Ph.D., CLP

St. Amand, A. L. (1990). Mechanisms controlling metalimnetic communities and the importance of metalimnetic phytoplankton to whole lake primary productivity. Ph.D. dissertation, University of Notre Dame.

St. Amand, A. L., Soranno, S. A., Carpenter, S. R., & Elser, J. J. (1989). Algal nutrient deficiency: Growth bioassays versus physiological indicators. *Lake Reservoir Management*, 5, 27-35.

Elser, J. J., Goff, N. C., MacKay, N. A., St. Amand, A. L., Elser, M. M., & Carpenter, S. R. (1987). Species-specific algal responses to zooplankton: Experimental and field observations in three nutrient-limited lakes. *Journal of Plankton Research*, 9, 699-717.

## Technical Skills

### General

- Experimental/Monitoring Design
- Erosion Control/Landscaping for Water Quality and Erosion Control
- Biostatistics

### Taxonomic Skills

- Phytoplankton (marine and freshwater)
- Periphyton (marine and freshwater)
- Core analysis for diatoms and akinetes
- Macrophytes (familiarity)
- Zooplankton (primarily freshwater)
- Benthic Macroinvertebrates (including chironomids, freshwater)
- Zebra/Quagga Mussel Veligers
- Fungi, filamentous bacteria (freshwater)

## Professional Societies/Journals

- American Water Works Association
- British Phycological Society
- International Society of Diatom Research
- International Phycological Society
- International Society for Optical Engineering
- Journal for Harmful Algae
- North American Lake Management Society (National & Michigan Affiliate)
- Michigan Microscopy and Microanalysis Society
- Phycological Society of America
- Southwest Michigan Sustainable Business Forum
- Michigan Chamber of Commerce
- Michigan Science Teachers Association
- The Michigan Riparian



# **Ann L. St. Amand, Ph.D., CLP**

## **Offices**

- Part Coordinator, Part 10000, Biological Examination. Standard Methods for the Examination of Waste Water and Water. 2010-present.
- JTG Chair, Plankton Section (10200), Standard Methods for the Examination of Waste Water and Water, 2006-present.
- NALMS (co-chair Bluegreen Algal Initiative, 2005 to present)
- Berrien County Science Olympiad, Water Quality Sections (2001 to present)
- NALMS (Administrative Council 1992-1994)
- NALMS (Chapters' Chair 1995-1998, Region 5 Director, 2001-2004 Secretary, 2005-2006)
- Michigan NALMS (President 1999-2002, Secretary 1993-1996, 2002-2007)
- Affiliate Representative to NALMS 1994 to present, Steering Committee WFB (1994-1996), MLSA (Science Advisory Committee 1999-2004), Moderator.

## **Sponsorships/Community Service**

- Upstream project at Upton Middle School, St. Joseph School District
- Outdoor Learning Areas at Brown Elementary School, St. Joseph School District
- Boy Scouts of America, Southwest Michigan Council
- St. Joseph High School Robotics Club
- Southwest Michigan Middle School Soccer League
- North Lincoln Baseball and Softball Association
- Science Olympiad, Berrien County