

SONYA HAVENS

Research Chemist, IISD Experimental Lakes Area

Sonya specializes in environmental analytical chemistry, with experience in limnology, biogeochemistry, electrochemistry, microbiology, inorganic chemistry and organic chemistry and manages the on-site Analytical Service Laboratory at IISD-ELA. Prior to joining IISD-ELA, Sonya was the recipient of an NSERC Postdoctoral Visiting Fellowship in Canadian Government Laboratories where she worked on a project that evaluated the effects of eutrophication and water level drawdown on Lake Whitefish productivity. She received her doctorate in Environmental Chemistry and Technology at the University of Wisconsin – Madison in 2011 and a Master of Science in Environmental Engineering and Science from Clarkson University in 2007. Her doctorate research studied the transport of steroid hormones from confined animal farming operations and her master’s investigated iron biogeochemistry in the Laurentian Great Lakes. Sonya’s research has appeared in several peer-reviewed journals, including *Environmental Toxicology and Chemistry*, *Journal of Environmental Quality*, *Journal of Agricultural Chemistry and Environment*, *Canadian Journal of Fisheries and Aquatic Sciences*, and *Limnology and Oceanography*.

Work Experience

2017–present	Research Chemist, IISD-Experimental Lakes Area International Institute for Sustainable Development, Winnipeg, Canada
2014-2017	Chemist, IISD-Experimental Lakes Area International Institute for Sustainable Development, Winnipeg, Canada
2013–2014	Postdoctoral Visiting Fellow in Canadian Government Laboratory Natural Sciences and Engineering Research Council of Canada, Winnipeg, Canada
2012–2013	Biologist Department of Fisheries and Oceans Canada, Winnipeg, Canada
2011-2012	Volunteer, IISD-Experimental Lakes Area International Institute for Sustainable Development, Winnipeg, Canada
2007-2011	Research Assistant University of Wisconsin - Madison
2004-2007	Research Assistant Clarkson University
2001-2003	Research Assistant University of San Francisco

Teaching/Outreach Experience

2009, 2010	Limnology Co-Instructor University of Wisconsin – Madison Grandparents University®
2010	Limnology Instructor University of Wisconsin – Madison College for Kids
2008	Limnology Instructor University of Wisconsin – Madison PEOPLE program
2006, 2007	Proctor Adirondack Region Science Olympiad
2005-2006	Teaching Fellow Clarkson University K12 Project-Based Learning Partnership
2001-2003	Research Assistant Yosemite Watershed Restoration Project

Education

Ph.D.	Environmental Chemistry and Technology, University of Wisconsin-Madison	2011
M.Sc.	Environmental Science and Engineering, Clarkson University	2007
B.Sc.	Environmental Science, University of San Francisco	2003

Languages

English

Publications

- Havens, S.**, Hedman, C., Hemming, J., Mieritz, M., Shafer, M., and Schauer, J. (2016). Influence of acidification on the partitioning of steroid hormones among filtrate, filter media, and retained particulate matter. *J. Environ. Qual.* 45(5): 1776-1781.
- Havens, S.**, Hedman, C., Hemming, J., Mieritz, M., Shafer, M., and Schauer, J. (2014). Comparison of accelerated solvent extraction, Soxhlet and sonication techniques for the extraction of estrogens, androgens and progestogens from soils. *J. Agric. Chem. Environ.* 3(3): 103-120.
- Havens, S.**, Hassler, C., North, R., Guildford, S., Silsbe, G., Wilhelm, S., and Twiss, M. (2012). Iron plays a role in nitrate drawdown by phytoplankton in Lake Erie surface waters as observed in lake wide assessments. *Can. J. Fish. Aquat. Sci.* 69(2): 369-381.
- Havens, S.**, Hedman, C., Hemming, J., Mieritz, M., Shafer, M., and Schauer, J. (2010). Stability, preservation, and quantification of hormones and estrogenic and androgenic activities in surface water runoff. *Environ. Toxicol. Chem.* 29: 2481-2490.
- Hassler, C., **Havens, S.**, Bullerjahn, G., McKay, R., and Twiss, M. (2009). An evaluation of iron bioavailability and speciation in western Lake Superior with the use of combined physical, chemical, and biological assessment. *Limnol. Oceanogr.* 54(3): 987-1001.
- North, R., Guildford, S., Smith, R., **Havens, S.**, and Twiss, M. (2007). Iron alleviates nitrogen limitation and increases phosphorus limitation of Lake Erie phytoplankton communities. *Limnol. Oceanogr.* 52(1): 315-328.

Reports and Conference Proceedings

- Havens, S.**, Rennie, M., Blanchfield, P., Paterson, M., and Higgins, S. (2014). Evaluation of eutrophication and water level drawdown on Lake Whitefish (*Coregonus chupeaformis*) productivity; Fish habitat assessment. *Can. Tech. Rep. Fish Aquat. Sci.* 3110: vi + 40 p.
- Chang, V., Metzger, E., Payne, M., **Havens, S.**, Peerman, W., and Lendvay, J. (2004). Community-based approach to environmental education. Paper presented at the American Society for Engineering Education Annual Conference & Exposition. Salt Lake City, UT. June 20-23. Session 3651.
- Metzger, E., **Havens, S.**, Chang, V., Clifton, K., and Lendvay, J. (2003). Yosemite Watershed Restoration Project. Paper presented at the American Society for Engineering Education Annual Conference & Exposition. Nashville, TN. June 22-25, 2003. Session 2651, Paper 1252.

Theses

Havens, S. (2011). Assessing the occurrence of steroid hormones and hormone metabolites from cattle and dairy animal feeding operations. Ph.D. Thesis. University of Wisconsin – Madison. Madison, WI.

Havens, S. (2007). Iron biogeochemistry in the surface waters of the Laurentian Great Lakes. M.Sc. Thesis. Clarkson University. Potsdam, NY.

Presentations (selected)

Havens, S. (2017) Keynote; The Experimental Lakes Area: Whole ecosystem aquatic research since 1968. 28th Annual Mid-Canada Association of Analytical Communities Day. Winnipeg, MB. June 21, 2017.

Havens, S., Barry, T., Gies, S., Hedman, C., Hemming, J., Mieritz, M., Shafer, M., and Schauer, J. (2010) Analysis of steroid hormones in surface water runoff from animal farms using sulfuric acid preservation and isotopically-labeled internal standards. American Chemical Society Spring Meeting. San Francisco, CA. March 21-25.

Havens, S., Hedman, C., Hemming, J., Mieritz, M., Shafer, M., and Schauer, J. (2009). A comparison of three techniques for extracting endocrine disrupting compounds from soils and their storage stability. Society of Environmental Toxicology and Chemistry North America 30th Annual Meeting. New Orleans, LA. November 19-23.

Havens, S., Barry, T., Hedman, C., Hemming, J., Mieritz, M., Shafer, M., and Schauer, J. (2008). Assessing the occurrence, transport, biological activity and ecological affects of hormones from confined animal feeding operations. Environmental Chemistry & Technology Seminar Series. University of Wisconsin at Madison. Madison, WI. December 5, 2008.

Havens, S., Hassler, C., North, R., Guildford, S., Wilhelm, S., and Twiss, M. (2006). Ironing out phytoplankton abundance in the surface waters of Lake Erie (IFYLE 2005). International Association for Great Lakes Research. Windsor, ON. May 22-26.

Havens, S., Hassler, C., North, R., Guildford, S., Wilhelm, S., and Twiss, M. (2006). Fe distributions in relation to phytoplankton abundance and nitrate drawdown in the surface water of Lake Erie (IFYLE 2005). Great Lake Research Consortium. Syracuse, NY. March 17, 2006.

Havens, S. and Twiss, M. (2005). Development of a competitive ligand equilibrium/adsorptive cathodic stripping voltammetric (CLE-ACSV) technique for iron speciation in freshwater. Environmental Sciences and Engineering Research Conference. Gananoque, ON. February 4-6, 2005.

Bean, J., **Havens, S.,** Sharac, T. (2005). The development and implementation of a project-based water quality curriculum for Clarkson University's K-12 Fellowship Program. Clarkson University Civil & Environmental Engineering Seminar. Potsdam, NY. December, 2, 2005.

Chang, V., Metzger, E., Payne, M., **Havens, S.,** Peerman, W., and Lendvay, J. (2004). Community-based approach to environmental education. Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition. Salt Lake City, UT. June 20-23. Session 3651.

Metzger, E., **Havens, S.**, Chang, V., Clifton, K., and Lendvay, J. (2003). Yosemite Watershed Restoration Project. Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition. Nashville, TN. June 22-25, 2003. Session 2651, Paper 1252.

Metzger, E., **Havens, S.**, Chang, V., Clifton, K., Peerman, W., and Lendvay, J. (2003). Community based water quality sampling at Bayview-Hunters Point, San Francisco, CA. Proceedings of the 2003 National Association of Environmental Professionals Annual Conference. San Antonio, TX. June 23-25, 2003.

Certifications

Standard First Aid with CPR (Red Cross)	expires Apr 2020
Transportation of Dangerous Goods Certificate	expires May 2020
Snowmobile Safety	certified 2018
WHMIS 2015	certified 2018
UTV Operation	certified 2017
ATV Operation	certified 2015
Pleasure Craft Operator Card	certified 2014
PADI Open Water Diver	certified 2013
Driver's License (class 5)	obtained 1996
Previously held: Wilderness & Remote First Aid	expired 2017

Scholastic Achievement and Awards

NSERC Postdoctoral Visiting Fellowship in Canadian Government Laboratory (2013-2015)

SETAC Midwest Best Student Platform (2009)

Great Lakes Research Consortium Don Rennie award (2006)

Clarkson K12 Fellowship (2005 – 2006)

Ford Scholarship Salute to Education (1999)

Affiliations (past and present)

American Chemical Society

American Society for Engineering Education

Canadian Water Resources Association

International Association for Great Lakes Research

Society of Environmental Toxicology and Chemistry