

**Nicole Kristine Ward**[Google Scholar](#) | [Research Gate](#) | [LinkedIn](#)Email: [nicole.k.ward@state.mn.us](mailto:nicole.k.ward@state.mn.us); Phone: (651) 299-4021**Education**

2016-2021	<b>Virginia Tech</b> <i>Ph.D. in Biological Sciences, Major Advisor: Dr. Cayelan Carey</i>	<b>Blacksburg, Virginia</b>
2013-2015	<b>University of Idaho</b> <i>M.S. in Water Resources Science and Management, Major Advisor: Dr. Erin Brooks</i>	<b>Moscow, Idaho</b>
2006-2010	<b>University of Wisconsin</b> <i>B.S. in Biology, Certificate in Environmental Studies</i>	<b>Madison, Wisconsin</b>

**Collaborative Research Experience**

12/2021 – Present	<b>Natural Resources Program Supervisor</b> <i>Minnesota Department of Natural Resources</i>	<b>Lake City, Minnesota</b>
<p>Lead the development and advancement of scientific knowledge for application to restoration, management, conservation actions, and policy enhancements related to the Upper Mississippi River. Provide operational and administrative oversight and support for Minnesota's Long Term Resource Monitoring Field Station as a part of the 5-state collaborative Upper Mississippi River Restoration Program. Design, oversee, and implement environmental data collection in collaboration with four or more professional staff.</p>		
6/2021 – 12/2021	<b>Postdoctoral Fellow</b> <i>Wisconsin Sea Grant; Wisconsin Department of Natural Resources</i>	<b>Madison, Wisconsin</b>
<p>Collaborated with Office of Great Waters staff to integrate climate resilience planning in Great Lakes and Mississippi River conservation projects. Disseminated climate change effects on Great Lakes ecosystem with the Wisconsin Initiative on Climate Change Impacts. Designed automated analysis using Python programming in GIS to identify climate-resilient coastal wetlands. Analyzed long-term water quality monitoring data for Great Lakes beaches using Generalized Additive Models to identify climate change effects.</p>		
6/2016 – 5/2021	<b>Ph.D. Research</b> <i>Virginia Polytechnic Institute and State University</i>	<b>Blacksburg, Virginia</b>
<p>Examined water quality and human decision making in lake watersheds. Developed an interdisciplinary dissertation bridging ecosystem science and human decision-making in Lake Sunapee, New Hampshire: Linked spatial patterns in lake metabolism with variable stream nutrient load; Assessed the effect of land use and climate change on water quality over 31-years using a lake ecosystem model; Co-produced an online, interactive data visualization tool for engaging lakefront private landowners with lawn best management practices: <a href="https://nkward.shinyapps.io/waterconnections/">https://nkward.shinyapps.io/waterconnections/</a>; developed survey to assess tool effectiveness in altering landowner perspectives. NSF ICER-1517823.</p>		
8/2015 – 6/2016	<b>Associate in Research</b> <i>Washington State University</i>	<b>Pullman, Washington</b>
<p>Assessed farm management using a fully-distributed 3-D hydrologic cropping systems model (CropSyst-MB). USDA-NIFA award #2011-67003-30341.</p>		

9/2013 – 8/2015      **M.S. Research**      **Moscow, Idaho**  
*University of Idaho*

Demonstrated the potential for lateral redistribution of nitrogen to contribute to downslope yields and profit in the Palouse region. USDA-NIFA award #2011-67003-30341.

5/2010 – 5/2013      **Aquatic Ecologist**      **Saint Paul, Minnesota**  
*Minnesota Department of Natural Resources*

Developed and implemented field and laboratory research, supervised nine student interns. Worked with agency decision makers to improve the management of streams and native mussels in Minnesota.

## PUBLICATIONS

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2022    **Ward, N.K.**, J.A. Brentrup, D.C. Richardson, K.C. Weathers, P.C. Hanson, R.J. Hewett, C.C. Carey. Dynamics of the stream – lake transitional zone affect littoral lake metabolism. *In Press, Aquatic Sciences*

Golub, M., W. Thiery, R. Marcé, D. Pierson, I. Vanderkelen, D. Mercado, R.I. Woolway, L. Grant, E. Jennings, J. Schewe, F. Zhao, K. Frieler, M. Mengel, V.Y. Bogomolov, D. Bouffard, R.M. Couture, A.V. Debolskiy, B. Droppers, G. Gal, M. Guo, A.B.G. Janssen, G. Kirillin, Robert Ladwig, M. Magee, T. Moore, M. Perroud, S. Piccolroaz, L.R. Vinnaa, M. Schmid, T. Shatwell, V.M. Stepanenko, Z. Tan, H. Yao, R. Adrian, M. Allan, O. Anneville, L. Arvola, K. Atkins, L. Boegman, C. Carey, K. Christianson, E. de Eyto, C. DeGasperi, M. Grechushnikova, J. Hejzlar, K. Joehnk, Ian D Jones, Alo Laas, E.B. Mackay, I. Mammarella, H. Markensten, C. McBride, D. Özkundakci, M. Potes, K. Rinke, D. Robertson, J. Rusak, R. Salgado, L. van den Linden, P. Verburg, D. Wain, **N.K. Ward**, S. Wollrab, & G. Zdrovennova. A framework for ensemble modelling of climate change impacts on lakes worldwide: the ISIMIP Lake Sector. *In Review, Geoscientific Model Development Discussions*.  
<https://doi.org/10.5194/gmd-2021-433>

**Ward, N.K.**, M.G. Sorice, M.S. Reynolds, K.C. Weathers, W. Weng, C.C. Carey. Can interactive data visualizations promote waterfront best management practices? *Lake and Reservoir Management*, 1-14. <https://doi.org/10.1080/10402381.2021.2021335>

2021    Roznere, M. Jeong, M., Maechling, L. **Ward, N.K.**, Brentrup, J.A., Steele, B., Bruesewitz, D.A., Ewing, H.A., Weathers, K.C., Cottingham, K.L. & A. Quattrini Li. Towards a reliable heterogeneous robotic water quality monitoring system: An experimental Analysis. *International Symposium on Experimental Robotics: ISER 2020*, 139-150. DOI: 10.1007/978-3-030-71151-1\_13.

Brentrup, J.A., Richardson, D.C., Carey, C.C., **Ward, N.K.**, Bruesewitz, D.A., and K.C. Weathers. Under-ice respiration rates shift the annual carbon cycle in the mixed layer of an oligotrophic lake from autotrophy to heterotrophy. *Inland Waters*, DOI: 10.1080/20442041.2020.1805261.

Carey, C.C., Woelmer, W.M., Lofton, M.E., Figueiredo, R.J., Bookout, B.J., Corrigan, R.S., Daneshmand, V., Hounshell, A.G., Howard, D.W., Lewis, A.S., McClure, R.P., Wander, H.L., **Ward, N.K.**, and Thomas, R.Q. Advancing lake and reservoir water quality management with near-term, iterative ecological forecasting. *Inland Waters*, DOI: 10.1080/20442041.2020.1816421.

- 2020 **Ward, N.K.**, Steele, B.G., Weathers, K.C., Cottingham, K.L., Ewing, H.A., Hanson, P.C., and C.C. Carey. Differential responses of maximum versus median chlorophyll-*a* to air temperature and nutrient loads in an oligotrophic lake over 31 years. *Water Resources Research*, 56(7): e2020WRO027296.
- Farrell, K.J., **Ward, N.K.**, Krinos, A.I., Hanson, P.C., Daneshmand, V., Figueiredo, R.J., and C.C. Carey. Ecosystem-scale nutrient cycling responses to increasing air temperatures vary with lake trophic state. *Ecological Modelling*, 430: 109134.
- Henson, V.R., Cobourn, K.M., Weathers, K., Carey, C.C., Farrell, K., Klug, J., Sorice, M., **Ward, N.K.**, Weng, W. A practical guide for managing interdisciplinary teams: lessons learned from coupled natural and human systems research. *Social Sciences*, 9(7): 119.
- Hanson, P.C., Stillman, A.B., Jia, X., Karpatne, A., Dugan, H.A., Carey, C.C., Stachelek, J., **Ward, N.K.**, Zhang, Y., Read, J.S., and V. Kumar. Predicting lake surface water phosphorus dynamics using process-guided machine learning. *Ecological Modelling*, 430: 109136.
- 2019 Carey, C.C., **Ward, N.K.**, Farrell, K., Lofton, M., Krinos, A., McClure, R., Subratie, K., Figueiredo, R., Doubek, J., Hanson, P., Papadopoulos, P., and P. Arzberger. Enhancing collaboration between ecologists and computer scientists: lessons learned and recommendations forward. *Ecosphere* 10(5): e02753.
- Ward, N.K.**, Fitchett, L., Hart, J.A., Shu L., Stachelek, J., Weng, W., Zhang, Y., Dugan, H., Hetherington, A., Boyle, K., Carey, C.C., Cobourn, K., Hanson, P.C., Kemanian, A.R., Sorice, M., and K.C. Weathers. Integrating fast and slow processes is essential for simulating human—freshwater interactions. *Ambio* 48(10): 1169-1182.
- Weng, W., Dugan, H.A., Farrell, K., Boyle, K.J., Weathers, K.C., **Ward, N.K.**, Carey, C.C., Cobourn, K.M., Hanson, P.C. Coupling natural and human models in the context of a lake ecosystem: Lake Mendota, Wisconsin, USA. *Ecological Economics*, DOI: 10.1016/j.ecolecon.2019.106556.
- 2018 **Ward, N.K.**, Maureira, F., Stöckle, C.O., Brooks, E.S., Painter, K.M., Yourek, M.A., and C.K. Gasch. Simulating field-scale variability and precision management with a 3D hydrologic cropping systems model. *Precision Agriculture* 19(2): 293-313.
- Cobourn, K.M., Carey, C.C., Boyle, K.J., Duffy, C., Dugan, H.A., Farrell, K.J., Fitchett, L., Hanson, P.C., Hart, J.A., Henson, V.R., Hetherington, A.L., Kemanian, A.R., Rudstam, L.G., Shu, L. Soranno, P.A., Sorice, M.G., Stachelek, J., **Ward, N.K.**, Weathers, K.C., Weng, W., Zhang, Y. From concept to practice to policy: modeling coupled natural and human systems in lake catchments. *Ecosphere* 9(5): 1-15.
- Carey, C.C., McClure, R.P., Doubek, J.P., Lofton, M.E., **Ward, N.K.**, and D. Scott. *Chaoborus* spp. transport CH<sub>4</sub> from the sediments to the surface waters of a eutrophic reservoir, but their contribution to water column CH<sub>4</sub> concentrations and diffusive efflux is minor. *Environmental Science and Technology* 52(3): 1165-1173.
- Doubek, J.P., Campbell, K.L., Doubek, K.M., Hamre, K.D., Harrell, C.W., Lofton, M.E., McClure, R.P., **Ward, N.K.**, Carey, C.C. The effects of hypolimnetic anoxia on the diel vertical migration of freshwater crustacean zooplankton. *Ecosphere*. *Ecosphere* 9(7):e02332. 10.1002/ecs2.2332.

**DATA and CODE PUBLICATIONS**

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- 2022 **Ward, N. K.** nkward/LakeMetabolismML: Lake Metabolism Predictor Analysis (Version v1.0.0). Zenodo. <https://doi.org/10.5281/zenodo.5021337>
- Ward N. K.**, J. A. Brentrup, D. C. Richardson, C. C. Carey. Lake ecosystem metabolism estimates from 3 locations in Lake Sunapee, NH, USA during the summer stratified period from June to September 2018. Environmental Data Initiative. <https://doi.org/10.6073/pasta/c54eeb67934e3c2576fcec4402767747>
- 2021 **Ward, N. K.** First release of WaterConnections (Version v1.0.0). Zenodo. <https://doi.org/10.5281/zenodo.4563032>
- 2020 **Ward, N. K.**, Steele, B., Carey, C. C., Hanson, P. C. Lake Sunapee Parameter Set and Driver Files for the General Lake Model Aquatic EcoDynamics (GLM AED). Environmental Data Initiative. <https://doi.org/10.6073/pasta/286364997e9a11f823097b3f116bfde8>
- 2019 **Ward N. K.**, J. A. Brentrup, A. E. Johnson, C. C. Carey, K. C. Weathers, J. R. Fichter. Underwater temperature and light data from 3 mini-buoys in Lake Sunapee, NH, USA from June – October 2018. Environmental Data Initiative. <https://doi.org/10.6073/pasta/20a698ec77707dd41c8a0b03a9fb2e34>

**REPORTS**

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- 2020 **Ward, N.K.**, Torso, K.A., Arnold, C.A., Mitchell, L., Bakermans, M.H. Improving Environmental Decision-Making Through Integrated Governance, Public Engagement, and Translational Approaches. *Bulletin of the Ecological Society of America*, DOI: 10.1002/bes2.1685
- 2019 Henson, V.R., Cobourn, K.M., Carey, C.C., Boyle, K.J., Sorice, M.G., **Ward, N.K.**, Weathers, K.C. Closing the Human-Nature Feedback Loop. *LakeLine* 39(3):35 – 38.

**TEACHING EXPERIENCE**

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- 2016 - 2020 **Graduate Teaching Assistant**, Freshwater Ecology **Blacksburg, Virginia**  
*Virginia Polytechnic Institute and State University*  
Led field and laboratory based scientific investigations for 13-18 students each week during fall semester. Mentored students in semester long research project development and analysis.
- 11/2018 **Guest Lecturer**, Population & Community Ecology **Blacksburg, Virginia**  
*Virginia Polytechnic Institute and State University*  
Invited to give a guest lecture on scientific presentation tips. The lecture focused on how to create bullet-free slides, eliciting emotion and using visuals that enhance your message.
- 6/2013 – 5/2014 **NSF Gk-12 Teaching Fellow** **Palouse, Washington**  
*University of Idaho and Garfield-Palouse High School*  
Developed and delivered inquiry-based lessons in high school Physical Science, Biology, and Environmental Science classes (roughly 10 hours of classroom instruction per week).

**GRANTS and FELLOWSHIPS (>\$90,000 awarded)**

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2020	<b>Calhoun Fellowship</b> , Lake Sunapee Protective Association (\$10,000)
2020 – 2021	<b>Dr. John Palmer Graduate Scholarship</b> , Virginia Tech Dept. of Biological Sciences (\$1,200)
2019 – 2020	<b>Interdisciplinary Research Fellowship</b> , Virginia Tech Interfaces of Global Change (\$40,000)
2019 – 2020	<b>Noel Krieg Graduate Fellowship</b> , Virginia Tech Department of Biological Sciences (\$1,200)
2019 – present	<b>Associate Fellow</b> , Virginia Tech Graduate Academy of Teaching Excellence
2016 – present	<b>Interfaces of Global Change Fellow</b> , Virginia Tech Global Change Center
2018	<b>Roundtable “Make-A-Difference” Graduate Grant</b> , Virginia Tech College of Science (\$10,000)
2013 – 2014	<b>GK-12 Fellowship</b> , National Science Foundation (\$30,000)

**Selected AWARDS, HONORS, and TRAVEL FUNDING (>\$7,500 awarded)**

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2020	<b>1<sup>st</sup> Place Poster Presentation Award</b> , North American Lake Management Society (\$200)
2019	<b>Student Travel Award</b> , North American Lake Management Society (~\$600)
2019	<b>Selected Participant; Spatial Agent-Based Modeling Workshop</b> , National Socio-Environmental Synthesis Center ( <b>SESYNC</b> ) (~\$1,500)
2018	<b>Travel Award</b> , Global Lakes Ecological Observatory Network Student Association (\$3,000)
2018	<b>1<sup>st</sup> Place Breakout Talk</b> , Virginia Tech Biological Sciences Research Day (\$200)
2018	<b>2<sup>nd</sup> Place Student Oral Presentation</b> , Universities Council on Water Resources Annual Water Resources Conference (\$200)
2017	<b>Travel Award</b> , Virginia Tech Graduate Student Assembly (\$320)
2017	<b>Selected Participant; Graduate Student Workshop</b> , National Socio-Environmental Synthesis Center ( <b>SESYNC</b> ) (~\$1,500)
2015	<b>3<sup>rd</sup> Place Oral Presentation</b> , Oregon State University Hydrophiles Water Symposium
2005	<b>2<sup>nd</sup> Place, Intel International Science &amp; Engineering Fair</b> , Benthological Studies (\$300)
2002	<b>Environmental Achievement Award</b> , for outstanding contributions to environmental quality in Olmsted County, MN.

**WORKSHOPS and SYMPOSIA Organized or Co-Organized**

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- 2020 *Working with Sensors and Analyzing Sensor Data*  
2020 North American Lake Management Society Virtual Meeting — November 16<sup>th</sup>  
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2020 North American Lake Management Society Virtual Meeting — November 20<sup>th</sup>
- 2019 *Local to Global Partnerships for Research and Monitoring*  
2019 North American Lake Management Society Meeting, Burlington, VT – November 11<sup>th</sup>  
*Working with Sensors and Analyzing Sensor Data*  
2019 North American Lake Management Society Meeting, Burlington, VT – November 11<sup>th</sup>  
*Improving Environmental Decision-Making Through Integrated Governance, Public Engagement, and Translational Approaches*  
2019 Ecological Society of America Conference, Louisville, KY – August 14<sup>th</sup>  
*Learn to Integrate NEON and GLEON Data into your Classroom using Macrosystems EDDIE!*  
2019 Ecological Society of America Conference, Louisville, KY – August 13<sup>th</sup>  
*Introduction to Vector-based Graphic Design with Inkscape*  
Virginia Tech, Blacksburg, VA – February 18th

**Selected ACADEMIC PRESENTATIONS (presenter is underlined)**

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- Ward, N.**, Weathers, K.C., Sorice, M.G., and C.C. Carey. **2020**. Can an interactive data visualization tool change waterfront property owners' behavior?. Poster presentation. North American Lake Management Society Meeting. Virtual.
- Ward, N.**, Weathers, K.C., and C.C. Carey. **2020**. Evaluation of an interactive visualization as a behavioral intervention to promote improved fertilizer use and waterfront buffers in a New England lake watershed. Virtual poster presentation. Ecological Society of America Symposium.
- Ward, N.**, Brentrup, J.A., Richardson, D.C., Weathers K.C., Carey, C.C. **2019**. Spatial variability in oligotrophic lake metabolism to prioritize nutrient mitigation. Oral presentation. North American Lake Management Society Meeting. Burlington, VT.
- Ward, N.**, Brentrup, J.A. **2019**. Affordable buoy design and data QAQC methods. Oral presentation. North American Lake Management Society Meeting *Sensor Workshop*. Burlington, VT.
- Ward, N.**, Brentrup, J.A. **2019**. Affordable high frequency sensor buoy design. Oral presentation. North American Lake Management Society Meeting *Local to Global Partnerships Workshop*. Burlington, VT.
- Ward, N.**, Brentrup, J.A., Richardson, D.C., Weathers K.C., Carey, C.C. **2019**. Spatial variability in oligotrophic lake metabolism may indicate trophic state change due to localized stream loading. Oral presentation. Ecological Society of America Annual Conference. Louisville, KY.
- Ward, N.**, Brentrup, J.A., Richardson, D.C., Weathers, K.C., Johnson, A., Carey, C.C. December **2018**. "Linking spatially explicit lake metabolism to spatially heterogeneous external nutrient loading." Poster presentation at the Global Lakes Ecological Observatory Network Meeting. Perth, Australia.

- Ward, N.,** Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2018.** Land use versus climate drivers of phytoplankton biomass in an oligotrophic lake. Oral presentation. Ecological Society of America Annual Conference. New Orleans, LA.
- Ward, N.,** Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2018.** Land use versus climate drivers of phytoplankton biomass in an oligotrophic lake. Oral presentation. Universities Council on Water Resources (UCOWR) Annual Water Resources Conference, Pittsburgh, PA.
- Ward, N.,** Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2018.** Land use versus climate drivers of algal production in an oligotrophic lake: it depends on season. Oral presentation. Virginia Tech Biological Sciences Research Day, Blacksburg, VA.
- Ward, N.,** Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2017.** Improving lake water quality with citizen scientists, high frequency sensors, and ecosystem modeling. Poster presentation. Global Lakes Ecological Observatory Network Conference, New Paltz, NY.
- Ward, N.,** Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2017.** Avoiding a poor water quality future in the face of global change. Oral presentation. Ecological Society of America Annual Conference, Portland, OR.
- Ward, N.,** Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2017.** Identifying early warning indicators of eutrophication to inform real-world management: engaging long-term datasets, ecosystem modeling, committed citizen scientists, and remote sensing. Poster presentation. Pacific Rim and Grid Middleware Assembly (PRAGMA) 32 conference, Gainesville, FL.
- Ward, N.,** Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2017.** Identifying early warning indicators of eutrophication to inform real-world management: engaging long-term datasets, ecosystem modeling, committed citizen scientists, and remote sensing. Poster presentation. Interfaces of Global Change Research Symposium, Blacksburg, VA.
- Lofton, M.E.,** McClure, R.P., Chen, S., Harrell, C.W., Doubek, J.P., **Ward, N.,** Schreiber, M.E., Little, J.C., Carey, C.C. **2017.** Storms can both stimulate and inhibit phytoplankton communities: lessons from a whole-ecosystem lake mixing experiment. Poster presentation. Pacific Rim Applications and Grid Middleware Assembly (PRAGMA) 32 conference, Gainesville, FL.
- Ward, N. 2016.** Lake Sunapee as a Coupled Human-Natural System. Oral presentation, Cross-boundary biogeosciences at Virginia Tech. Blacksburg, VA.
- Ward, N.,** Maureira, F., Brooks, E., Yourek, M., Stockle, C. **2015.** Cropsyst-Microbasin model as a tool to inform variable-rate nitrogen management and dryland farm profitability. Oral presentation, American Society of Agronomy 2015 Annual Meeting, Minneapolis, MN.
- Brooks, E., **Ward, N.,** Painter, K., Davis, H. **2015.** Use of the Nutrient Management Plan Policy Tool to Overcome Barriers to Adoption of Precision Agriculture in the Palouse Region of the Inland Pacific Northwest. Poster presentation, American Society of Agronomy 2015 Annual Meeting, Minneapolis, MN.
- Stockle, C.,** Maureira, F., **Ward, N.,** Yourek, M., Poggio, M., and Brooks, E. **2015.** Importance of Characterization of Soil Properties and Spatial Distribution in Watershed Modeling. Poster presentation, Soil Science Society of America 2015 Annual Meeting, Minneapolis, MN.

### **Selected ACADEMIC PRESENTATIONS (*continued*)**

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- Ward, N.**, Brooks, E., Painter, K. **2015**. Improving agricultural nitrogen use through policy incentivized management strategies. Oral presentation, Oregon State University Hydrophiles Symposium, Corvallis, OR.
- Ward, N.**, Maureira, F., Boylan, R., Brooks, E., Yourek, M., Wardall, A., Stockle, C. **2014**. Impacts of increased precipitation on Dryland Cereal Production Systems in the Pacific Northwest. Poster Presentation, Pacific Northwest Climate Conference, Seattle, WA.
- Ward, N.**, Maureira, F., Yourek, M., Brooks, E., Stockle, C. **2014**. Assessing variable rate nitrogen fertilizer strategies within an extensively instrumented field site using the MicroBasin model. Poster Presentation, American Geophysical Union (AGU) Meeting, San Francisco, CA.
- Brooks, E.**, Poggio, M., Anderson, T., Gasch, C., Yourek, M., **Ward, N.**, Magney, T., Brown, D., Huggins, D. **2014**. Capturing field-scale variability in crop performance across a regional-scale climosequence. Poster Presentation, American Geophysical Union (AGU) Meeting, San Francisco, CA.
- Ward N.**, and Sietman, B. **2013**. Nocturnal mantle display behavior in three lampsiline mussels. Poster presentation, Freshwater Mollusk Conservation Society Meeting, Guntersville, AL.
- Sietman, B.**, Davis, M., **Ward, N.** **2013**. 14 Years Underwater – Documenting the Diversity and Status of Freshwater Mussels in Minnesota. Poster presentation, Freshwater Mollusk Conservation Society Meeting, Guntersville, AL.
- Ward, N.**, Sietman, B., Davis, M., Pletta, M. **2011**. Extirpation and Re-colonization of Freshwater Mussels in the Minnesota and Mississippi Rivers. Oral presentation, Freshwater Mollusk Conservation Society Meeting, Louisville, KY.

### **Selected GENERAL AUDIENCE or STAKEHOLDER PRESENTATIONS (*presenter is underlined*)**

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- Ward, N.**, M.S. Reynolds. **2020**. Land use decision-making, water quality, and lake associations. Oral presentation. Lake Sunapee Protective Association Annual Meeting, Virtual.
- Wander, H.**, Lofton, M., McClure, R., Woelmer, W., Breef-Pilz, A., Lewis, A., Hammond, N., Howard, D., **Ward, N.**, Carey, C. **2020**. Annual Report-Back. Western Virginia Water Authority. Virtual.
- Ward, N.** **2020**. [Balancing Society & the Environment](#). YouTube Video Submission to *Science Magazine's* annual **Dance Your PhD** Competition.
- Ward, N.**, Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2019**. Climate perspectives of phytoplankton futures. Oral presentation. CyanoSummit. Sunapee, New Hampshire.
- Wander, H.**, Lofton, M., McClure, R., Woelmer, W., Bookout, B., Lewis, A., Hammond, N., Howard, D., **Ward, N.**, Carey, C. **2019**. Annual Report-Back. Western Virginia Water Authority. Roanoke, VA.
- Ward, N.**, Steele, B., Weathers K.C., Cottingham K.L., Ewing, H.A., Hanson, P.C., Wood, R., Fichter, J., Carey, C.C. **2018**. Connecting water and people. Oral presentation. Lake Sunapee Protective Association Annual Meeting, Sunapee, NH.
- Wander, H.**, Lofton, M., McClure, R., Woelmer, W., Bookout, B., Lewis, A., Hammond, N., Howard, D., **Ward, N.**, Carey, C. **2018**. Annual Report-Back. Western Virginia Water Authority. Roanoke, VA.
- Ward, N.**, C.C. Carey. **2017**. Lake Sunapee GLM Research Update. Oral presentation, Lake Sunapee Protective Association in Sunapee, NH.
- Ward, N.**, Steele, B., Carey, C.C. **2017**. Lake Sunapee GLM Research Trajectory. Oral presentation. Lake Sunapee Protective Association in Sunapee, NH via Skype.



**Selected GENERAL AUDIENCE or STAKEHOLDER PRESENTATIONS (*continued*)**

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**Ward, N. 2017.** Water and People. Oral presentation. Nutshell Games, Virginia Tech Center for Communicating Science, Blacksburg, VA.

**Ward, N., C.C. Carey. 2016.** Lake Sunapee GLM Research Trajectory. Oral presentation, Lake Sunapee Protective Association in Sunapee, NH.

**Ward, N. 2013.** The Secret Lives of Native Freshwater Mussels. Oral Presentation, Rochester Senior Center, Rochester, MN.

**Ward, N. 2012.** Amazing Mussels of the Zumbro. Oral Presentation, Zumbro Watershed Partnership, Rochester, MN.

**Ward, N. 2012.** Native Mussels and the Zumbro Watershed. Oral Presentation, Lake Zumbro Improvement Association Meeting, Mazeppa, MN.

**PROFESSIONAL SOCIETIES**

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2019 – Present North American Lake Management Society (NALMS)

2016 – Present Global Lakes Ecological Observatory Network (GLEON), Ecological Society of America (ESA)

2013 – 2016 International Association for Hydro-Environment Engineering and Research, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America

2011 – 2013 Freshwater Mollusk Conservation Society

**JOURNAL REVIEWS**

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2017-20 Ad-hoc referee for Limnology and Oceanography Letters, Geoscientific Model Development, Lake and Reservoir Management, Limnology and Oceanography Methods

**CONTRIBUTIONS TO COMMUNITY**

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2020	<b>Content Creator</b> – <i>WomInspire Garage</i>	YouTube
2018 - 2019	<b>Vice President</b> – <i>IGC Graduate Student Organization</i>	Blacksburg, Virginia
2017 - 2019	<b>Treasurer</b> – <i>Biological Graduate Student Association (BGSA)</i>	Blacksburg, Virginia
2017 - 2018	<b>Social Chair</b> – <i>IGC Graduate Student Organization</i>	Blacksburg, Virginia
2016 - 2018	<b>Merchandise Committee</b> – <i>BGSA</i>	Blacksburg, Virginia
2017	<b>Volunteer</b> – <i>Gilbert Linkous Elementary Science Fair</i>	Blacksburg, Virginia
2017	<b>Volunteer</b> – <i>ReNEW the New, River Clean-up</i>	Montgomery Co., Virginia
2015	<b>Judge</b> - <i>The Confluence Project: Youth Water Summit</i>	Moscow, Idaho
2013 - 2015	<b>Volunteer</b> – <i>Annual Palouse River Clean-up</i>	Pullman, Washington
2010 – 2013	<b>Reading Tutor</b> - <i>Everybody Wins! Minnesota</i>	Saint Paul, Minnesota
2002 – 2013	<b>Lake Monitoring Citizen</b> , <i>MN Pollution Control Agency</i>	Oronoco, Minnesota
2012	<b>Volunteer</b> – <i>Friends of the Boundary Waters Wilderness</i>	Minneapolis, Minnesota

**SKILLS**

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Process-based modeling (*CropSyst-MB, General Lake Model, Aquatic EcoDynamics*); Programming, coding (*R, Shiny, VBA, Python, C++*); Geospatial analysis (*ArcGIS*); SCUBA (*Open-Water Cert. in 2000; Divemaster in 2010*); Video editing (*Adobe Premier Pro, iMovie*); Website design; Vector-based graphic design (*Inkscape, Adobe Illustrator*); Cross-disciplinary communication (*shared language development, boundary object conceptual mapping, shared visioning*); Field methods (*stream ecology, limnology, agronomy, hydrology, soil science, weather stations, high-frequency sensors*)