

## VALERIE J. BRADY

---

Natural Resources Research Institute  
University of Minnesota Duluth  
(218)-788-2753

5013 Miller Trunk Highway  
Duluth, MN 55811-1442  
[vbrady@d.umn.edu](mailto:vbrady@d.umn.edu)

### Research Interests

Watershed influences on aquatic habitat and community structure and function; restoration of streams and wetlands; use of aquatic invertebrates for diagnostic assessment and monitoring of streams and wetlands.

### Education

Postdoc	Aquatic and Landscape Ecology	U.S. EPA-MED	2000
Ph.D.	Zoology/Aquatic Ecology	Michigan State University	1996
M.S.	Zoology/Aquatic Ecology	Michigan State University	1992
B.S.	Biology/Environmental Science	Taylor University	1988

### Professional Experience

2015	Interim Co-director, Minnesota Sea Grant College Program
2002 – present	Research Associate, Natural Resources Research Institute, University of Minnesota Duluth
2008 – present	Graduate faculty member, Water Resources Science Graduate Program, UMD (sr. member 2010)
2005 – present	Graduate faculty member, Integrated BioSciences Graduate Program, UMD (sr. member 2010)
2006 – present	Research Coordinator, Minnesota Sea Grant College Program
2002 – present	Adjunct Assistant Professor, Department of Biology, University of Minnesota Duluth.
2001 – 2002	Post-Doctoral Fellow, NRRI, UMD
1997 – 2000	National Research Council Post-Doctoral Fellow, US EPA-MED, Duluth, MN.
1996 – 1997	Temporary Assistant Professor, Biology Department, The College of New Jersey.

### Selected Grants

- St. Louis County Aquatic Invasive Species Prevention Program, "What gear on your boat is most likely to spread spiny water flea?" 2017-2019 Co-PI, \$95,387.
- Functional Indicators of Great Lakes Coastal Wetland Condition. Central Michigan University (USGS prime). 2015-2016. Co-PI. \$220,000
- Coastal Wetland Monitoring: Continued Implementation by the GLCWC. Central Michigan University (USEPA GLNPO prime). 2015-2020. Co-PI. \$10M.
- Prioritizing Future Management of North Shore Trout Streams. MN LCCMR. 2015 – 2018. Co-PI. \$416,000.
- Thunder Bay Coastal Wetland Habitat Surveys. Environment Canada. 2013-2014. PI. \$24,500.
- Habitat, Fish, and Invertebrate Pre-restoration Surveys in the Knife River. Lake Superior Steelhead Association. 2013-2014. PI. \$13,500.
- Duluth Township Stormwater Tracking System. Minnesota Lake Superior Coastal Program. 2013-2014. PI. \$6,400.
- St. Louis River AOC R2R Support Project- Ecological Monitoring and Assessment. Minnesota Pollution Control Agency. PI. 2013-2016. \$568,827
- Post-flood and Post-restoration Biotic Sampling of Fond du Lac and Martin Branch Streams. 2012-2013. Fond du Lac Environmental Program. PI. \$11,000.
- Ecological Design for St Louis River Area of Concern: 21st Avenue West Remediation to Restoration Project. US Fish and Wildlife Service. Co-PI. 2011-2012. \$223,720
- Pre-restoration Biological Condition Assessment for the St. Louis River Radio Tower Bay Project. Minnesota Land Trust. 2011. \$24,000
- Prioritizing Wetland Restoration for Water Quality and Habitat Improvement. Cooperative Agreement with MPCA. Co-PI. 2011-2014. \$350,000
- Ecological Design for the St. Louis River Area of Concern 40<sup>th</sup> Ave W Habitat Complex Remediation-to-Restoration Project. Cooperative Agreement with USFWS. Co-PI. 2010-2011. \$143,980.

GLIC: Implementing Great Lakes coastal wetland monitoring. Central Michigan University (USEPA GLNPO prime). Co-PI. 2010 – 2015. \$10M.

GLIC: GLEI II indicator testing and refinement. USEPA GLNPO. Co-PI. 2010-2014. \$1.6M

Developing a diagnostic tool for assessing excessive sediment harm to stream communities. Minnesota's Lake Superior Coastal Program. PI. 2010-2011. \$48,000.

Investigating the effects of altering Lake Superior water level regulation on Great Lakes coastal ecosystems. Cooperative agreement with US Army Corps of Engineers. PI. 2009-2010. \$300,000.

St. Louis River watershed streams and lakes: water quality/biological monitoring. Minnesota Pollution Control Agency. Co-PI. 2009-2011. \$302,067

Volunteer-assisted water quality/biological monitoring of North Shore Superior streams. Minnesota Pollution Control Agency. Co-PI. 2008-2010. \$225,000.

Assessment of turbidity and sedimentation effects on Miller Creek, Duluth, MN. South Saint Louis Soil and Water Conservation District (MPCA). Co-PI. 2008-2010. \$23,704.

Duluth residential stormwater reduction demonstration project for Lake Superior Tributaries. Minnesota Pollution Control Agency 319 program (USEPA). Co-PI. 2008-2011. \$167,383.

North Shore community futures: aquatic resources and growth scenarios. Minnesota Lake Superior Coastal Program. 2006-2007. PI. \$58,043.

Assessing the condition of Lake Superior rocky coastlines. Minnesota Sea Grant. PI. 2005-2007. \$80,000.

An exchange network/CDX flow protocol (RDXP) for delivering heterogeneous research data and metadata, with metadata entry tools. US EPA Region V. Co-PI. 2004-2006. \$100,847.

Assessment of turbidity and sedimentation effects as part of the Knife River TMDL investigation. South Saint Louis Soil and Water Conservation District. PI. 2006-2007. \$10,000

Coordinator for the Estuarine and Great Lakes (EaGLE) Coastal Initiative. U.S. Environmental Protection Agency Cooperative Agreement. 2002-2006. \$84,000.

### **Selected Publications and Reports**

Angradi, T.R., W.M. Bartsch, A.S. Trebitz, V.J. Brady, and J.J. Launspach. 2017. Deriving depth-adjusted numeric removal targets for a Great Lakes Area of Concern beneficial use impairment: degraded benthos. *J. Great Lakes Res.* In press.

Uzarski, D.G., V.J. Brady, M.J. Cooper, D.A. Wilcox, D.A. Albert, R.P. Axler, P. Bostwick, T.N. Brown, J.J.H. Ciborowski, N.P. Danz, J.P. Gathman, T.M. Gehring, G.P. Grabas, A. Garwood, R.W. Howe, L.B. Johnson, G.A. Lamberti, A.H. Moerke, B.A. Murry, G.J. Niemi, C.J. Norment, C.R. Ruetz III, A.D. Steinman, D.C. Tozer, R. Wheeler, T.K. O'Donnell, J.P. Schneider. 2017. Standardized Measures of Coastal Wetland Condition: Implementation at a Laurentian Great Lakes Basin-Wide Scale. *Wetlands*. 37(1), 15-32.

Olker, J.H., K.E. Kovalenko, J.J.H. Ciborowski, V.J. Brady, and L.B. Johnson. 2016. Watershed Land Use and Local Habitat: Implications for Habitat Assessment. *Wetlands*. 36:311 - 318.

Trebitz, A., G. Shepard, V. Brady, and K. Schmude. 2015. The non-native faucet snail (*Bithynia tentaculata*) makes the leap to Lake Superior. *J. Great Lakes Res.* 41:1197-1200.

*Field Guide for Maintaining Rural Roadside Ditches*. 2014. Fortin Consulting, Inc.; Natural Resources Research Institute and University of Minnesota Sea Grant Program, University of Minnesota.

Kovalenko, K.E., Brady, V.J., Ciborowski, J.J.H., Ilyushkin, S. and Johnson, L.B. 2014. Functional changes in littoral macroinvertebrate communities in response to watershed-level anthropogenic stress. *PLoS ONE* 9(7): e101499.

Kovalenko, K.E., Brady, V.J., Brown, T.N., Ciborowski, J.J.H., Danz, N.P., Gathman, J.P., Host, G.E., Howe, R.W., Johnson, L.B., Niemi, G.J. and Reavie, E.D. 2014. Congruence of community thresholds in response to anthropogenic stress in Great Lakes coastal wetlands. *Freshwat. Sci.* (featured article). 33(3): 958-971.

Dumke, J., V. Brady, and R. Hell. 2014. Assessment of Habitat and Biota in the West Branch of the Knife River, MN. Report to Lake Superior Steelhead Association. NRRI/TR-2014/10.

Brady, V., J. Dumke, and R. Hell. 2013. Post-flood and Post-restoration Biotic Sampling of Fond du Lac and Martin Branch Streams. Report to Fond du Lac Environmental Program. NRRI/TR-2013/12.

Eckman, K., V. Were, V. Brady, J. Schomberg, R. Axler, C. Kleist. 2013. Using social science data to evaluate residential stormwater treatments in Duluth Minnesota. *Water Resources Impact*.

- Niemi, G., E. Reavie, G. Peterson, J. Kelly, C. Johnston, L. Johnson, R. Howe, G. Host, T. Hollenhorst, N. Danz, J. Ciborowski, T. Brown, V. Brady, and R. Axler. 2011. An integrated approach to assessing multiple stressors for coastal Lake Superior. *Aq. Eco. Health Manag.* 14(4): 356-371.
- Brady, V., J. Dumke, and D. Breneman. 2011. Pre-restoration Assessment of Biological Condition for Radio Tower Bay in the St. Louis River Estuary. A report to the Minnesota Land Trust. NRRI/TR-2011/56.
- Kleist, C., V. Brady, and J. Schomberg. 2011. Duluth Residential Stormwater Reduction Demonstration Project for Lake Superior Tributaries. Report to Minnesota Pollution Control Agency on contract #: B10575. NRRI/TR-2011/36.
- Dumke, J.D., T. Hrabik, V. Brady, K. Gran, R. Regal, M. Seider. 2010. Channel morphology response to selective wood removals in a sand-laden Wisconsin trout stream. *N. Am. J. Fish. Manag.* 30(3): 776-790.
- Brady, V., C. Reschke, D. Breneman, G. Host, and L. Johnson. 2010. 40<sup>th</sup> Avenue West Remediation to Restoration Project: Biological Survey Results. A report to US Fish and Wildlife Service for Cooperative Agreement 30181AJ68. NRRI/TR-2010/24.
- Ciborowski, J., G. Niemi, V. Brady, S. Doka, L. Johnson, J. Keough, S. Mackey, D. Uzarski. 2009. Ecosystem Responses to Regulation-based Water Level Changes in the Upper Great Lakes. Report to the Upper Great Lakes Water Level Regulation Study Ecosystem Technical Working Group.
- Niemi, G.J., Brady, V.J., Brown, T.N., Ciborowski, J.J.H., Danz, N.P., Ghioca, D.M., Hanowski, J.M., Hollenhorst, T.P., Howe, R.W., Johnson, L.B., Johnston, C.A., Reavie, E.D. 2009. Development of ecological indicators for the U.S. Great Lakes coastal region - A summary of applications in Lake Huron. *Aquatic Ecosys. Health Manage.* 12: 77 - 89.
- Brady, V. and D. Breneman. 2008. Poplar River Macroinvertebrate and Habitat Survey in support of the Poplar River TMDL study. A report to the Cook County Soil and Water Conservation District. NRRI/TR-2008/27.
- Breneman, D., V. Brady, T. Hollenhorst, and L. Johnson. 2008. Little Rock Creek Biological Survey, Habitat Evaluation, and GIS Analysis in support of the Little Rock Creek TMDL study. A report to the Benton County Soil and Water Conservation District. NRRI/TR-2008/31.
- Brady, V., J. Ciborowski, L. Johnson, N. Danz, J. Holland, D. Breneman, J. Gathman. 2007. Optimizing fishing time: One vs. two-night fyke net sets in Great Lakes coastal systems. *J. Great Lakes Res.* 33(3): 236-244.
- Trebitz, A., J. Brazner, V. Brady, R. Axler, D. Tanner. 2007. Turbidity tolerances of Great Lakes coastal wetland fishes. *N. Am. J. Fish. Manage.* 27:619-633.
- Brady, V. and D. Breneman. 2007. Knife River Macroinvertebrate and Sediment Survey in support of the Knife River TMDL study. A report to the South Saint Louis Soil and Water Conservation District. NRRI/TR-2007/14.
- Danz, N.P., G.J. Niemi, R.R. Regal, T. Hollenhorst, L.B. Johnson, J.M. Hanowski, R. Axler, J.J.H. Ciborowski, T. Hrabik, V.J. Brady, J.R. Kelly, J.C. Brazner, R.W. Howe, C.A. Johnston, G.E. Host. 2007. Integrated gradients of anthropogenic stress in the Great Lakes basin. *Environ. Manag.* 39:631-647.
- Brady, V. and D. Breneman. 2007. Knife River Macroinvertebrate and Sediment Survey in support of the Knife River TMDL study. A report to the South Saint Louis Soil and Water Conservation District. NRRI/TR-2007/14.
- Brazner, J., N. Danz, G. Niemi, R. Regal, A. Trebitz, R. Howe, J. Hanowski, L. Johnson, J. Ciborowski, C. Johnston, E. Reavie, V. Brady, G. Sgro. 2007. Evaluation of geographic, geomorphic and human influences on Great Lakes wetland indicators: A multi-assemblage approach. *Ecolog. Indicators* 7:610-635.
- Detenbeck, N.E., V.J. Brady, D.L. Taylor, V.M. Snarski, S.L. Batterman. 2005. Relationship of stream flow regime in the western Lake Superior basin to watershed type characteristics. *J. Hydrology* 309(1-4):258-276.
- Danz, N.P., R.R. Regal, G.J. Niemi, V. Brady, T. Hollenhorst, L.B. Johnson, G.E. Host, J.M. Hanowski, C.A. Johnston, T. Brown, J. Kingston, and J.R. Kelly. 2005. Environmentally Stratified Sampling Design for the Development of Great Lakes Environmental Indicators. *Env. Monit. Assess.* 102:41-65.
- Tanner, D.K., J.C. Brazner, V.J. Brady, R.R. Regal. 2004. Habitat associations of larval fish in a Lake Superior coastal wetland. *J. Great Lakes Res.* 30(3): 349-359.
- Niemi, G.J., D. Wardrop, R. Brooks, S. Anderson, V. Brady, H. Paerl, C. Rakocinski, M. Brouwer, B. Levinson, M. McDonald. 2004. Rationale for a new generation of ecological indicators for coastal waters. *Env. Health Pers.* 112(9):979-986.

- Brady, V.J., B.J. Cardinale, J. P. Gathman, T. M. Burton. 2002. Does facilitation of faunal recruitment benefit ecosystem restoration? An experimental study of invertebrate assemblages in wetland mesocosms. *Rest. Ecol.* 10 (4):617-626.
- Stricker, C.A., T.M. Burton, V.J. Brady, B.J. Cardinale, J.P. Gathman. 2001. Invertebrate communities of Great Lakes' coastal wetlands, Saginaw Bay, Lake Huron. *Verh. Internat. Verein. Limnol.* 27:3440-3443.
- Tanner, D., J. Brazner, V. Brady. 2000. Factors influencing carbon, nitrogen and phosphorus content of fish from a Lake Superior coastal wetland. *Can. J. Fish. Aquat. Sci.* 57: 1243-1251.
- Detenbeck, N.E., S.L. Batterman, V.J. Brady, J.C. Brazner, V.M. Snarski, D.L. Taylor, J.A. Thompson, J.W. Arthur. 2000. The Western Lake Superior Comparative Watershed framework: A test of geographically-dependent vs. geographically-independent, threshold-based watershed classification systems for ecological risk assessment. *Env. Tox. Chem.* 19: 1174-1181.
- Cardinale, B.J., V.J. Brady, T.M. Burton. 1998. Changes in the abundance and diversity of coastal wetland fauna from the open water/macrophyte edge towards shore. *Wetlands Ecol. Manag.* 6:59-68.
- Brady, V.J., B.J. Cardinale, T.M. Burton. 1995. Zebra mussels in a coastal marsh: the seasonal and spatial limits of colonization. *J. Great Lakes Res.* 21(4): 587-593.

### **Professional Activities**

- Keynote presentation to the Minnesota Wastewater Operators Association (June 2010)
- US EPA STAR Fellowship Review Panel (2006, 2007, 2009)
- IBS and WRS Admissions Committees (2005-2008; 2009-present)
- IBS Curriculum Committee (2009-present)
- Reviewer for Restoration Ecology, Wetlands Ecology and Management, International Journal of Great Lakes Research, Wetlands.

### **Professional Societies**

- Society for Freshwater Science (formerly North American Benthological Society)
- Society of Wetland Scientists
- International Association for Great Lakes Research
- Northwoods Women in Science, Lake Superior Chapter (formerly Association of Women in Science; president 2006, vice-president 2005, co-webmaster 2005-2011)

### **Graduate Students (major professor)**

- Joshua Dumke, MSc. 2009. Integrated BioSciences. Thesis: Channel Morphology Change and biotic Response to a Selective Wood Removal Technique in a Sand-laden Lake Superior Trout Stream.
- Larissa Herrera, MSc. 2016. Water Resources Science. Thesis: Identifying the Impacts of Excess Fine Sediment on Benthic Macroinvertebrate Communities.