

**DANIEL J. HORNBACKH**  
**JOHN S. HOLL PROFESSOR OF ENVIRONMENTAL STUDIES**

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**EDUCATION:** Ph.D.: Miami University, Oxford, Ohio. 1980. Major Zoology.  
M.S.: University of Dayton, Dayton, Ohio. 1976. Major: Biology.  
B.S.: University of Dayton, Dayton, Ohio. 1974. Major: Biology.

**ACADEMIC EXPERIENCE:**

- Faculty member, Department of Biology, Macalester College. Assistant Professor: September 1984 -August 1987; Associate Professor: September 1987 - August 1993; Full Professor: September 1993 - December 1997; DeWitt Wallace Professor: January 1998 – 2015; John S. Holl Professor: September 2015 - Present. Professor in Environmental Studies: 2006-present.
- Associate Editor, American Midland Naturalist. September 1995-2001.
- Assistant Professor, Department of Biology, University of Virginia. September 1980 - May 1984.
- Faculty, Mountain Lake Biological Station, University of Virginia. Summers of 1981, 1982, and 1984.

**ADMINISTRATIVE EXPERIENCE:**

- Environmental Studies Department, Chair, June 2006 – May 2019
- *Dean of the Faculty and Provost, Macalester College. June 1999-July 2005.*
- Biology Department Chair. September 1996 - 1999.
- *Provost, Macalester College. August 1993 - August 1995.*
- Faculty Development Coordinator for the Science Division, Macalester College. Aid faculty in investigating and obtaining grant support for research and curriculum development. September 1988 - August 1993.
- Director, Katherine Ordway Natural History Study Area. Oversee the development of research projects, prairie restoration, and the educational use of this 285-acre area owned by Macalester College. September 1986- September 1998.

- Other relevant administrative experience: I have chaired the following elected committees as a faculty member at Macalester - Personnel Committee, Faculty Advisory Council, Long Range Planning and Budget, and the Resources and Planning Committees, and the Educational Policy and Governance Committee. I have served as a reviewer for several Biology and Environmental Studies departments including:
  - St. Olaf College – Natural Lands Program - 2020
  - Colgate University – Environmental Studies - 2019
  - Smith College – Environmental Science and Policy - 2019
  - Carthage College – Environmental Science - 2018
  - Connecticut College – Environmental Studies - 2017
  - University of Massachusetts, Boston – Environmental and Sustainability Studies - 2016
  - Earlham College – Environmental Science/Studies - 2014
  - Marist College – Environmental Science and Policy - 2013
  - Ohio Wesleyan University – Environmental Studies – 2013
  - Knox College – Environmental Studies – 2012
  - Drake University – Environmental Studies – 2012
  - St. Olaf College – Biology - 2010
  - College of Wooster, OH- Consult on new ES minor - 2008
  - Lake Forest College - Environmental Studies - 2008
  - St.John's/St. Ben's University - MN - Environmental Studies - 2008
  - Pitzer College -Environmental Studies - 2007
  - Mt. Holyoke College - Environmental Studies - 2007
  - Queen's University (Kingston, Ont.) - Environmental Studies - 2007
  - Colorado College - Dept. Biology- 2006
  - Wheeling Jesuit University - Dept Biology - 2005 - only reviewer
  - Grinnell College -Education Dept. - 2003 - chair of team

## **HONORS AND AWARDS:**

- Honorary Member of Phi Beta Kappa (Epsilon of Minnesota Chapter). 2019.
- Freshwater Mollusk Conservation Society Lifetime Achievement Award 2017.
- Named John S. Holl Professor of Environmental Studies. Fall 2015.
- Midstates Consortium for Math and Science Janet Andersen Lecture Award, 2013
- Thomas Jefferson Service Award, Macalester College, March 2011.
- American Fisheries Society, MN Chapter, Best Poster Award, 38<sup>th</sup> Annual Meeting, March 2005.
- The Sir Charles Maurice Yonge Award, Malacological Society of London for a paper on Bivalvia that has made a significant contribution to the knowledge of this group (J. Moll. Stud. 67: 407-416 with S. M Baker). 2002.
- Named DeWitt Wallace Professor of Biology. November 1997.
- MN Governor's Certificate of Commendation for participation in the Zebra Mussel Task Force Partnership nominated for the MN Cooperative Public Service Award. 1994.
- Alumni Special Achievement Award - University of Dayton. October 1994.
- Blandin Faculty Fellowship Program. September 1990.

### **PROFESSIONAL AFFILIATIONS:**

- American Institute of Biological Sciences
- Society for Freshwater Science
- Global Lakes Ecological Observatory Network (GLEON)
- Freshwater Mollusk Conservation Society
- Higgins Eye Pearlymussel Recovery Team (USFWS)
- Journal of Freshwater Ecology – Editorial Board, 2011-present
- Freshwater Mollusk Biology and Conservation – Associate Editor, 2021 – present

### **GRANTS (HORNBACH AS PI OR CO-PI):**

- MN Aquatic Invasive Species Research Center (2022) - \$39,120\*\*
- USGS-Natural Resource Preservation Program (2020-2023) - \$22,000\*\*\*
- MN Aquatic Invasive Species Research Center (2019-2021) - \$53,359\*\*
- MN Aquatic Invasive Species Research Center (2018) - \$14,787\*\*
- Legislative and Citizens Commission on MN Resources (2014-2018) - \$177,000\*\*
- National Park Service (2012) - \$18,600
- National Park Service (2011) - \$7100
- National Park Service (2010-2011) - \$24,300
- NSF Field Station Planning Grant (2009-2010) - \$24,575
- Mellon Foundation (2007-2009) - \$300,000\*
- National Park Service (2009-2010) - \$55,535
- National Park Service (2009-2011) - \$50,000
- National Park Service (2008-2010) - \$149,100
- National Park Service (2004-2007) - \$214,000
- National Park Service (2001-2004) - \$60,000
- National Park Service (2000-2002) - \$40,900
- Legislative Commission on MN Resources (1999-2001) - \$58,000
- National Park Service (1998) - \$4000
- National Park Service (1997) - \$6000
- Wisconsin Dept. Natural Resources (1997-98) \$6000
- Legislative Commission on MN Resources (1997-98) - \$9400
- Army Corps of Engineers (1996) - \$5000
- US Fish & Wildlife Service (1994-1995) - \$34,000
- US National Park Service (1993-1996) - \$63,000
- US Environmental Protection Agency (1992-1996) \$505,000
- Wisconsin Dept. Natural Resources (1992) \$20,000
- Minnesota Dept. Natural Resources (1992-93) \$3000
- Minnesota Dept. Natural Resources (1990-91) \$3000
- Blandin Foundation (1990-91) - \$10,000
- NSF ILIP Grant (1988) - \$83,000
- US Army Corps of Engineers (1987-1990)- \$72,000
- NSF ILIP Grant (1987) - \$35,546

\*Grant to start the 3 Rivers Center at Macalester College

\*\* Macalester portion of joint grant with Univ. Minnesota

\*\*\* Macalester portion of 1<sup>st</sup> year of grant with USGS-UMESC

### **SELECTED RECENT PRESENTATIONS – LAST 6 YEARS:**

- The 13<sup>th</sup> Biennial Freshwater Mollusk Conservation Society Meeting, Portland, OR. 2023.
- The 68<sup>th</sup> Society for Freshwater Science Meeting, Virtual Meeting, 2020.
- The 67<sup>th</sup> Society for Freshwater Science Meeting, Salt Lake City, UT. 2019.
- The 11<sup>th</sup> Biennial Freshwater Mollusk Conservation Society Meeting, San Antonio, TX. 2019.
- The 66<sup>th</sup> Society for Freshwater Science Meeting, Detroit, MI. 2018
- The 65<sup>th</sup> Society for Freshwater Science Meeting, Raleigh, NC. 2017
- The St. Croix River Research Rendezvous, Sci. Museum of MN. 2017
- The 64<sup>th</sup> Society for Freshwater Science Meeting, Sacramento, CA. 2016.
- The St. Croix River Research Rendezvous, Sci. Museum of MN. 2015
- The 62<sup>nd</sup> Society for Freshwater Science Meeting, Portland, OR. 2014.
- The St. Croix River Research Rendezvous, Sci. Museum of MN. 2014
- The 61<sup>st</sup> Society for Freshwater Science Meeting, Jacksonville, FL. 2013.
- The St. Croix River Research Rendezvous, Sci. Museum of MN. 2013

### **PUBLICATIONS – REFEREEED PAPERS**

- Hopper, G., E. Miller, W. Haag, C. Vaughn, D. Hornbach, J. Jones, and C. Atkinson. 2024. A test of the loose-equilibrium concept with long-lived organisms: evaluating temporal change in freshwater mussel communities. *Journal of Animal Ecology*. 93: 281-293. <https://doi.org/10.1111/1365-2656.14046>
- Hornbach, D.J., J.L. Kozarek, N. Blinick, M.C. Hove, P. Grams, M. Kaplinski, K.R. MacGregor, C. Milliren and A.T. Riesgraf. 2023. Distribution pattern of the Zebra Mussel (*Dreissena polymorpha*) in White Bear Lake, Minnesota: a spatial scale analysis. *Journal of Freshwater Ecology* 38: 2202700. <https://doi.org/10.1080/02705060.2023.2202700>
- Bakshi, B. R.W. Bouchard, Jr., R. Dietz, D. Hornbach, P. Monson, B. Sietman and D. Wasley. 2023. Freshwater mussels, ecosystem services, and clean water regulation in Minnesota: formulating an effective conservation strategy. *Water* 15: 2560. <https://doi.org/10.3390/w15142560>
- Holgerson, M.A., D.C. Richardson, J. Roith, L.E. Bortolotti, K. Finlay, D.J. Hornbach, K. Gurung, A. Ness, M.R. Andersen, S. Bansal, J.C. Finlay, J.A. Cianci-Gaskill, S. Hahn\*, B.D. Janke, C. McDonald, J.P. Mesman, R.L. North, C.O. Roberts, J.N. Sweetman, and J.R. Webb. 2022. Classifying mixing regimes in ponds and shallow lakes. *Water Resources Research* 58: e2022WR032522. <https://doi.org/10.1029/2022WR032522>
- Moore, A.P., N. Galic, R.A. Brain, D.J. Hornbach, and V.E. Forbes. 2021. Towards representing listed mussel species in ecological risk assessment: a database and multivariate analysis of freshwater mussel life-history traits. *Aquatic Conservation: Marine and Freshwater Ecosystems* 31: 3386-3402. <https://doi.org/10.1002/aqc.3713>
- Hornbach, D.J., K.L. Shea, J.J. Dosch, C.L. Thomas, T.B. Gartner, A. Aguilera, L.J. Anderson, K. Geedey, C. Mankiewicz, B.R. Pohlad and R.E. Schultz 2021. Decomposition of leaf litter from native and non-native woody plants in terrestrial and aquatic systems in the eastern and upper midwestern US. *American Midland Naturalist* 186: 51-75. <https://doi.org/10.1674/0003-0031-186.1.51>

- Hornbach D.J., H.N. Stutzman\*, H.N., M.C. Hove J. L. Kozarek, K. R. MacGregor, T. J. Newton and P.R. Ries. 2021. Influence of surrounding land-use on mussel growth and glycogen levels in the St. Croix and Minnesota River Basins. *Hydrobiologia* 848: 3045-3063. [doi/10.1007/s10750-019-04016-z](https://doi.org/10.1007/s10750-019-04016-z)
- Hornbach, D.J. 2021. Multi-year monitoring of ecosystem metabolism in two branches of a cold-water stream. *Environments* 8: 19. <https://doi.org/10.1007/s10750-019-04016-z>
- Hornbach, D.J., E.G. Schilling and H. Kundel\*. 2020. Ecosystem metabolism in small ponds: the effects of floating-leaved macrophytes. *Water* 12: 1458. <https://doi.org/10.3390/w12051458>
- Hornbach, D.J., M.C. Hove, K.R. MacGregor, J.L. Kozarek, B.E. Sietman, and M. Davis. 2019. A comparison of freshwater mussel assemblages along a land use gradient in Minnesota. *Aquatic Conservation: Marine and Freshwater Ecosystems* 29: 1826–1838. <https://doi.org/10.1002/aqc.3167>
- Santosh, K., J. Kozarek, D. Hornbach, M. Hondzo and J. Hong. 2019. Experimental investigation of turbulent flow over live mussels. *Environmental Fluid Mechanics* <https://doi.org/10.1007/s10652-019-09664-2>
- Hornbach, D.J., D.C. Allen, M.C. Hove and K.R. MacGregor. 2018. Long-term decline of native freshwater mussel assemblages in a federally protected river. *Freshwater Biology* 63: 243-263 <https://doi.org/10.1111/fwb.13055>
- Hornbach, D.J., M.C. Hove, M.W. Ensley-Field\*, M.R. Glasenapp\*, I.A. Goodbar\*, J.D. Harman\*, B.D. Huber\*, E.A. Kangas\*, K.X. Liu\*, M. Stark-Ragsdale\* and L.K. Tran\*. 2017. Comparison of ecosystem processes in a woodland and prairie pond with different hydroperiods. *Journal of Freshwater Ecology* 32: 675-695. <https://doi.org/10.1080/02705060.2017.1393468>
- Hansen, A.T., J. A. Czuba, J. Schwenk, A. Longjas, M. Danesh-Yazdi, D. J. Hornbach and E. Foufoula-Georgiou. 2016. Coupling freshwater mussel ecology and river dynamics using a simplified dynamic interaction model. *Freshwater Science* 35: 200–215. <https://doi.org/10.1086/684223>
- Hove, M., B. Sietman, M. Berg, E. Frost, K. Wolf, T. Brady, S. Boyer and D. Hornbach. 2016. Early life history of the sheepsnose (*Plethobasus cyphyus*) (Mollusca: Bivalvia: Unionoida). *Journal of Natural History* 50: 523-542. <https://doi.org/10.1080/00222933.2015.1083059>
- Hornbach, D., M Hove, M. Agata\*, E. Arnold\*, E. Cavazos\*, C. Friedman\*, K. Jay\*, E. Johnson\*, K. Johnson\*, and A. Staudenmaier. 2016. Ecosystem Structure and Function in two branches of an eastern Minnesota trout stream. *Journal of Freshwater Ecology* 31: 487-507. <https://doi.org/10.1080/02705060.2016.1212118>
- Hornbach, D.J., R. Beckel\*, E.N. Hustad\*, D.P. McAdam\*, I.M. Roen\*, and A.J. Wareham\*. 2015. The influence of riparian vegetation and season on stream metabolism of Valley Creek, Minnesota. *Journal of Freshwater Ecology* 30: 569-588. <https://doi.org/10.1080/02705060.2015.1063096>
- Hornbach, D.J. M.C. Hove, H. Liu\*, F.R. Schenck\*, D. Rubin\* and B.J. Sansom\*. 2014. The influence of two differently sized dams on mussel assemblages and growth. *Hydrobiologia* 724: 279-291. <http://dx.doi.org/10.1007/s10750-013-1743-y>
- Simmons, J.A., M. Anderson, W. Dress, C. Hannac, D.J. Hornbach, A. Janmaat, F. Kuserk, J. G. March, T. Murray, J. Niedzwiecki, D. Panvini, B. Pohlad, C. Thomas, and L. Vasseurk. 2014. A comparison of the stream temperature regime under forested and non-forested riparian 4 zones at eleven sites across North America. *River Research and Applications* 31: 964-974. <https://doi.org/10.1002/rra.2796>
- Sansom. B.J.\*, D.J. Hornbach, M.C. Hove, and J.S. Kilgore. 2013. Effects of flow restoration on mussel growth in a Wild and Scenic River North American River. *Aquatic Biosystems* 9: 6 (11 pages). <https://doi.org/10.1186/2046-9063-9-6>

- Szumowski\*, S.C., S.L. Boyer, D.J. Hornbach and M.C. Hove. 2012. Genetic diversity of two common freshwater mussel species, *Lampsilis cardium* and *Quadrula pustulosa* (Bivalvia, Unionidae), in a large federally protected waterway (St. Croix River, Minnesota/Wisconsin, U.S.A.). American Malacological Bulletin 30: 1-14. <https://doi.org/10.4003/006.030.0105>
- Hove, M.C., M. T. Steingraeber, T. J. Newton, D. J. Heath, C. L. Nelson, J. A. Bury, J. E. Kurth, M. R. Bartsch, W. S. Thorpe, M. R. McGill, and D. J. Hornbach. 2012. Early life history of the winged mapleleaf mussel (*Quadrula fragosa*). American Malacological Bulletin 30: 47–57. <https://doi.org/10.4003/006.030.0104>
- Hove, M.C., B.E. Sietman, J.E. Bakelaar, J.A. Bury, D.J. Heath, V.E. Pepi, J.E. Kurth, J.M. Davis, D.J. Hornbach and A. R. Kapuscinski. 2011. Early Life History and Distribution of Pistolgrip (*Tritogonia verrucosa* (Rafinesque, 1820)) in Minnesota and Wisconsin. American Midland Naturalist 165:338-354. <https://doi.org/10.1674/0003-0031-165.2.338>
- Bowne, D.R., A.L. Downing, M.F. Hoopes, K. LoGiudice, C.L. Thomas, L.J. Anderson, T. Gartner, D.J. Hornbach, K.Kuers, J. Machado, B.R. Pohlad and K. L. Shea. 2011. Transforming ecological science at primarily undergraduate institutions through collaborative networks. BioScience 61:386-392. <http://dx.doi.org/10.1525/bio.2011.61.5.7>
- Panahbehagh, B., D.R. Smith, M. Salehi, D.J. Hornbach, and J.A. Brown. 2011. Multi-species attributes as the condition for adaptive sampling of rare species using two-stage sequential sampling with an auxiliary variable, pp. 2093-2099 In Chan, F., D. Marinova, and R.S. Anderssen (eds.) MODSIM2011, 19th International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand, December 2011. (ISBN: 978-0-9872143-1-7)
- Hornbach, D.J., M.C. Hove, B. Dickinson\*, K. MacGregor and J.R. Medland. 2010. Estimating population size and habitat associations of two federally endangered mussels in the St. Croix River, Minnesota and Wisconsin, USA. Aquatic Conservation: Marine and Freshwater Ecosystems 20: 250-260. <https://doi.org/10.1002/aqc.1081>
- Hornbach, D.J. V.J. Kurth\*, and M.C. Hove. 2010. Variation in freshwater mussel shell sculpture and shape along a river gradient. American Midland Naturalist 164:22-36. <https://doi.org/10.1674/0003-0031-164.1.22>
- Baker, S.M. and D.J. Hornbach. 2008. Zebra mussels (*Dreissena polymorpha*) attached to native mussels (Unionidae) or inanimate substrates: Comparison of physiological rates and biochemical composition. American Midland Naturalist 160:20-28. [https://doi.org/10.1674/0003-0031\(2008\)160\[20:ZMDPAT\]2.0.CO;2](https://doi.org/10.1674/0003-0031(2008)160[20:ZMDPAT]2.0.CO;2)
- Allen,\* D.C., M.C. Hove, B.E. Sietman, Mike Davis, D.E. Kelner, Jennifer E. Kurth, Jeffrey L. Weiss, and D.J. Hornbach. 2007. Aspects of reproductive biology and conservation status of *Venustaconcha ellipsiformis* (Bivalvia: Unionidae) in Minnesota. American Midland Naturalist 157: 74-91. [http://dx.doi.org/10.1674/0003-0031\(2007\)157\[74:ELACSO\]2.0.CO;2](http://dx.doi.org/10.1674/0003-0031(2007)157[74:ELACSO]2.0.CO;2)
- Hornbach, D.J. 2007. Phylogeny and Classification: Electrophoretic Evidence, pp. 200-202. IN G.L. Mackie. Biology of Freshwater Corbiculid and Sphaeriid Clams of North America. Ohio Biological Survey Bulletin, New Series, Volume XV, Number 3. Columbus, Ohio.
- Hornbach, D.J. and C.M. Way. 2007. Ecology: Population Dynamics, Energetics and Production, pp. 126-128. IN G.L. Mackie. Biology of Freshwater Corbiculid and Sphaeriid Clams of North America. Ohio Biological Survey Bulletin, New Series, Volume XV, Number 3. Columbus, Ohio.
- Beekey, MA and D.J. Hornbach. 2004. The effect of size-limited brood size in a freshwater bivalve. American Midland Naturalist 151: 274-285. [https://doi.org/10.1674/0003-0031\(2004\)151\[0274:TEOSBC\]2.0.CO;2](https://doi.org/10.1674/0003-0031(2004)151[0274:TEOSBC]2.0.CO;2)

- Cope, W.G., M.C. Hove, D.L. Waller, D.J. Hornbach, M.R. Bartsch, L.A. Cunningham\*, H.L. Dunn and A.R. Kapuscinski. 2003. Evaluation of relocation of unionid mussels to *in situ* refugia. Journal of Molluscan Studies 69: 27-34. <https://doi.org/10.1093/mollus/69.1.27>
- Hornbach, D.J. 2001. Macrohabitat factors influencing the distribution and abundance of najads in the St. Croix River, MN and WI, USA, pp. 213-230. In G. Bauer and W. Wachtler [eds] Ecology and Evolutionary Biology of the Freshwater Mussels Unionoidea. Ecological Studies Vol. 145. Springer-Verlag: Berlin.
- Baker, S. and D.J. Hornbach. 2001. Seasonal metabolism and biochemical composition of two unionid mussels, *Actinonaias ligamentina* and *Amblema plicata*. Journal of Molluscan Studies 67: 407-416. <https://doi.org/10.1093/mollus/67.4.407>
- Baker, S. and D.J. Hornbach. 2000. Physiological status and biochemical composition of a natural population of unionid mussels (*Amblema plicata*) infested by zebra mussels (*Dreissena polymorpha*). American Midland Naturalist 143: 443-452. [https://doi.org/10.1674/0003-0031\(2000\)143\[0443:PSABCO\]2.0.CO;2](https://doi.org/10.1674/0003-0031(2000)143[0443:PSABCO]2.0.CO;2)
- Tyrrell\*, M. and D.J. Hornbach. 1998. Selective predation by muskrats on freshwater mussels in 2 Minnesota rivers. Journal of North American Benthological Society 17: 301-310. <https://doi.org/10.2307/1468333>
- Baker, S. and D.J. Hornbach. 1997. Acute physiological effects of zebra mussel (*Dreissena polymorpha*) infestation on two unionid mussels, *Actinonaias ligamentina* and *Amblema plicata*. Canadian Journal of Fisheries and Aquatic Sciences 54: 512-597. <https://doi.org/10.1139/f96-319>
- Hornbach, D.J., T. Deneka, B.S. Payne and A.C. Miller. 1996. Shell morphometry and tissue condition of *Amblema plicata* in the upper Mississippi River. Journal Freshwater Ecology 11: 233-240. <https://doi.org/10.1080/02705060.1996.9663483>
- Hornbach, D.J., J.G. March\*, T. Deneka\*, N.H. Troelstrup and J.A. Perry. 1996. Factors influencing the distribution and abundance of the endangered winged mapleleaf mussel, *Quadrula fragosa* in the St. Croix River, Minnesota and Wisconsin. American Midland Naturalist 136: 278-286. <https://doi.org/10.2307/2426732>
- Hornbach, D.J. and T. Deneka. 1996. A comparison of a qualitative and a quantitative collection method for examining freshwater mussel assemblages. Journal of North American Benthological Society 15: 587-596. <https://doi.org/10.2307/1467809>
- Baker, P., S. Jennings and D.J. Hornbach. 1995. Can zebra mussels force a species to extinction? *Dreissena* 6(5): 1-4.
- Hornbach, D.J., T. Deneka\*, M. Hu\*, B.S. Payne and A. C. Miller. 1993. Temporal and spatial variability in midge assemblages from a backwater lake in Pool 2, Mississippi River. Hydrobiologia 252: 133-141. <https://doi.org/10.1007/BF00008151>
- Hornbach, D.J., A.C. Miller and B.S. Payne. 1992. Species composition of the mussel assemblages in the upper Mississippi river. Malacological Review 25: 119-128.
- Hornbach, D.J., T. Deneka\*, A. C. Miller and B. S Payne. 1991. Variations in the rate of sediment accumulation in a backwater lake, Pool 2, Mississippi River. Journal of Freshwater Ecology 6: 53-60. <https://doi.org/10.1080/02705060.1991.9665275>
- Hornbach, D.J., T. Wilcox\*, L. Powers\*, J. Layne\* and T. Davis\*. 1991. A method for assessing clearance rates in suspension-feeding organisms using a fiber-optic colorimeter. Canadian Journal of Zoology 69:2703-2706. <https://doi.org/10.1139/z91-381>
- Wilcox, T.\* and D.J. Hornbach. 1991. Macrofaunal community response to carp (*Cyprinus carpio* L.) foraging. Journal of Freshwater Ecology 6: 171-183. <https://doi.org/10.1080/02705060.1991.9665291>

- Hornbach, D.J., T. Deneka\* and R. Dado\*. 1991. Life-cycle variation of *Musculium partumeium* (Bivalvia; Sphaeriidae) from a temporary and a permanent pond in Minnesota. Canadian Journal of Zoology 69: 2738-2744. <https://doi.org/10.1139/z91-385>
- Hornbach, D.J. 1991. The influence of oxygen availability on oxygen consumption in the freshwater clam *Musculium partumeium*. American Malacological Bulletin 9: 39-42. [https://doi.org/10.1016/0300-9629\(92\)90544-Z](https://doi.org/10.1016/0300-9629(92)90544-Z)
- Hornbach, D.J. 1991. Life history traits of a riverine population of the Asian clam *Corbicula fluminea*. American Midland Naturalist 127:248-257. <https://doi.org/10.2307/2426531>
- Hornbach, D.J. 1991. The influence of acclimatization, temperature and size on the oxygen consumption of the freshwater clam, *Musculium partumeium* (Say). Comparative Biochemistry and Physiology 101A: 345-349. [https://doi.org/10.1016/0300-9629\(92\)90544-Z](https://doi.org/10.1016/0300-9629(92)90544-Z)
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- Way, C.M. D.J. Hornbach, T. Deneka\* and R.A. Whitehead. 1989. A description of the ultrastructure of the gills of freshwater bivalves, including a new structure, the frontal cirrus. Canadian Journal of Zoology 67: 357-362. <https://doi.org/10.1139/z89-053>
- Hornbach, D.J., T. Deneka\*, B.S. Payne and A.C. Miller. 1989. Benthic macroinvertebrate community structure in a backwater lake of Pool 2, Upper Mississippi River. Journal of Freshwater Ecology 5: 131-138. <https://doi.org/10.1080/02705060.1989.9665223>
- Hornbach, D. J. and D. L. Childers\*. 1987. The effects of acidification on life-history traits of the freshwater clam, *Musculium partumeium* (Say), 1822 (Bivalvia: Pisidiidae). Canadian Journal of Zoology 65: 113-121. <https://doi.org/10.1139/z87-017>
- Hornbach, D. J. and C. Cox\*. 1987. Environmental influences on life history traits in *Pisidium casertanum* (Bivalvia: Pisidiidae): Field and laboratory experimentation. American Malacological Bulletin 5: 49-64.
- Hornbach, D. J. and D. L. Childers\*. 1986. Life-history variation in a stream population of *Musculium partumeium* (Bivalvia: Pisidiidae). Journal of the North American Benthological Society 5: 263-271. <https://doi.org/10.2307/1467478>
- Burky, A. J., D. J. Hornbach and C. M. Way. 1985. Comparative bioenergetics of permanent and temporary pond populations of the freshwater clam, *Musculium partumeium* (Say). Hydrobiologia 126:35-48. <https://doi.org/10.1007/BF00008385>
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