

James N. McNair

Robert B. Annis Water Resources Institute
Lake Michigan Center
740 West Shoreline Drive
Muskegon, MI 49441

E-mail: mcnairja@gvsu.edu • *Phone:* 616-331-3987

Web: <http://faculty.gvsu.edu/mcnairja/>

Last updated: 31 January 2025

Current Position

Associate Professor, Robert B. Annis Water Resources Institute, Grand Valley State University.

Education

1979: Ph.D. Biology (Ecology and Theoretical Biology), University of Pennsylvania.

1974: B.S. Biology, Davidson College.

Educational Honors and Fellowships

1978–1979: N.I.H. Trainee in Theoretical Biology, University of Pennsylvania

1976–1978: University Fellow, University of Pennsylvania

1974: Graduated *cum laude* and Phi Beta Kappa from Davidson College.

Professional Experience, last 20 years

2009 to present: Associate Professor, Annis Water Resources Institute, Grand Valley State University.

2000–2009: Adjunct Professor of Biology, Department of Biology, University of Pennsylvania.

1991–2009: Senior Scientist and Head, Ecological Modeling Section, Patrick Center for Environmental Research, Academy of Natural Sciences of Philadelphia.

Current Professional Service

Academic Editor, *PLOS ONE*

Research Areas

My main research interests at the present time are developing and analyzing stochastic models of disturbance effects on patch dynamics and succession in ecological communities, mechanistic models of stream metabolism, statistical methods for estimating components of stream metabolism based on free-water dissolved-oxygen dynamics, statistical methods for environmental studies involving quantitative PCR data (qPCR, ddPCR), stochastic models and statistical methods in stream fisheries management, modern statistical methods for environmental studies involving censored time-to-event data or censored concentration data, and empirical and nonparametric statistical methods for studies of invasive plants.

Peer-Reviewed Publications (*: graduate student, **: undergraduate student)

- McNair, J.N., Frobish, D., Rediske, R.R., Hart*, J.J., Jamison*, M.N., and Szlag, D.C. 2025. The theoretical basis of qPCR and ddPCR copy number estimates: A critical review and exposition. *Water* 17: 381, 45 pages. DOI: <https://doi.org/10.3390/w17030381>
- McNair, J.N., Rediske, R.R., Hart*, J.J., Jamison*, M.N., and Briggs, S. 2025. Performance of Colilert-18 and qPCR for monitoring *E. coli* contamination at freshwater beaches in Michigan. Invited paper for a special issue titled “Monitoring of Contaminated Water and Soil” (C. Massarelli, ed.) *Environments* 12: 21, 19 pages. DOI: <https://doi.org/10.3390/environments12010021>
- McNair, J.N., Frobish, D., Rice*, E.K., and Thum, R.A. 2024. Alternative study designs and nonparametric statistical methods for adaptive management studies of invasive plants. *Invasive Plant Science and Management* 17: 157–171. DOI: [10.1017/inp.2024.17](https://doi.org/10.1017/inp.2024.17)
- Hart*, J.J., Jamison*, M.N., Porter*, A.M., McNair, J.N., Szlag, D.C., Rediske, R.R. 2023. Fecal impairment framework, a new conceptual framework for assessing fecal contamination in recreational waters. *Environmental Management* DOI: <https://doi.org/10.1007/s00267-023-01878-x>.
- Hart*, J.J., Jamison*, M.N., McNair, J.N., Szlag, D.C. 2023. Frequency and degradation of SARS-CoV-2 markers N1, N2, and E in sewage. *Journal of Water and Health* 21(4): 514–524. DOI: [10.2166/wh.2023.314](https://doi.org/10.2166/wh.2023.314).
- Hart*, J.J., Jamison*, M.N., McNair, J.N., Woznicki, S.A., Jordan, B., Rediske, R.R. 2023. Using watershed characteristics to enhance fecal source identification. *Journal of Environmental Management* 336: 117642. DOI: <https://doi.org/10.1016/j.jenvman.2023.117642>.
- McNair, J.N., Lane, M.J., Hart*, J.J., Porter, A.M., Briggs, S., Southwell, B., Sivy, T., Szlag, D.C., Scull, B.T., Pike, S., Dreeling, E., Vernier, C., Carter, B., Sharp, J., Nowlin, P., Rediske, R.R. 2022. Validity assessment of Michigan’s proposed qPCR threshold value for rapid water-quality monitoring of *E. coli* contamination. *Water Research* 226: 119235, 11 pages. DOI: <https://doi.org/10.1016/j.watres.2022.119235>
- DeNicola, D., McNair, J. N., and Suh, J. 2021. A stochastic model of epilithic algal succession and patch dynamics in streams. *Ecosphere* 12(7):e03566, 25 pages. DOI: <https://doi.org/10.1002/ecs2.3566>
- Myers*, D.T., Rediske, R.R., McNair, J.N., Parker, A.D., and Ogilvie, E.W. 2021. Relating environmental variables with aquatic community structure in an agricultural/urban coldwater stream. *Ecological Processes* 10:37. DOI: <https://doi.org/10.1186/s13717-021-00312-6>
- Mock*, A. J., Ruetz, C. R., McNair, J. N., Mays, D., and Martell, A. 2020. Evaluating remote site incubators in Michigan streams: implications for Arctic Grayling reintroduction. *North American Journal of Fisheries Management*. DOI: <https://doi.org/10.1002/nafm.10534>
- Lane*, M. J., Rediske, R. R., McNair, J. N., Briggs, S., Rhodes, G., Dreelin, E., Sivy, T., Flood, M., Scull, B., Szlag, D., Southwell, B., Isaacs, N. M., and Pike, S. 2020. A comparison of *E. coli* concentration estimates quantified by the U.S. EPA and a Michigan laboratory network using U.S. EPA Draft Method C. *Journal of Microbiological Methods*. DOI: <https://doi.org/10.1016/j.mimet.2020.106086>
- Myers*, D. T., Rediske, R. R., McNair, J. N., and Allen, M. E. 2020. Watershed and streambank erosion modeling in a coldwater stream using the GWLF-E model: application and evaluation. *Modeling Earth Systems and Environment*. DOI: <https://doi.org/10.1007/s40808-020-00882-y>
- Rice*, E. K., Leimbach-Maus*, H., Partridge, C., and McNair, J. N. 2020. Assessment of invasive *Gypsophila paniculata* control methods in the northwest Michigan dunes. *Invasive Plant Science and Management* 13: 94–101. DOI: <https://doi.org/10.1017/inp.2020.10>

- Lane*, M. J., McNair, J. N., Rediske, R. R., Briggs, S., Sivaganesan, M., and Haugland, R. 2020. Simplified analysis of measurement data from a rapid *E. coli* qPCR method (EPA Draft Method C) using a standardized Excel workbook. *Water* 2020, 12, 775. DOI: <https://doi.org/10.3390/w12030775>
- Rice*, E. K., Martínez-Oquendo**, P., and McNair, J. N. 2019. Phenology of seed maturation in *Gypsophila paniculata* in northwest Michigan, USA, and its relation to glyphosate efficacy. *Invasive Plant Science and Management* 12: 194–201. DOI: <https://doi.org/10.1017/inp.2019.21>
- Myers*, D. T., Rediske, R. R., and McNair, J. N. 2019. Measuring streambank erosion: a comparison of erosion pins, total station, and terrestrial laser scanner. *Water* 11(9). DOI: <https://doi.org/10.3390/w11091846>
- McNair, J. N., Ruetz III, C. R., Carlson*, A., and Suh, J. 2018. Reducing effects of dispersal on the bias of 2-sample mark-recapture estimators of stream fish abundance. *PLOS ONE* 13(8): e0200733. DOI: <https://doi.org/10.1371/journal.pone.0200733>
- Thum, R. A. and McNair, J. N. 2018. Inter- and intraspecific hybridization affects germination and vegetative growth in Eurasian watermilfoil. *Journal of Aquatic Plant Management* 56: 24–30.
- Taylor*, L. L., McNair, J. N., Guastello*, P., Pashnick*, J., and Thum, R. A. 2017. Heritable variation for vegetative growth rate in ten distinct genotypes of hybrid watermilfoil. *Journal of Aquatic Plant Management* 55: 51–57.
- Thum, R. A., Parks*, S. R., McNair, J. N., Tynning, P., Hausler, P., Chadderton, L., Tucker, A., and Monfils, A. 2017. Survival and vegetative regrowth of Eurasian and hybrid watermilfoil following operational treatment with auxinic herbicides in Gun Lake, Michigan, USA. *Journal of Aquatic Plant Management* 55: 103-107.
- Parks*, S. R., McNair, J. N., Hausler, P., Tynning, P., and Thum, R. A. 2016. Divergent responses of cryptic invasive watermilfoil to treatment with auxinic herbicides in a large Michigan lake. *Lake and Reservoir Management* 32: 366–372.
- McNair, J.N., Sesselmann*, M.R., Gereaux*, L.C., Weinke**, A.D., Kendall, S.T., and Biddanda, B.A. 2015. Alternative approaches for estimating components of lake metabolism using the free-water dissolved-oxygen (FWDO) method. *Fundamental and Applied Limnology* 186: 21–44.
- Ruetz III, C. R., Harris**, B. S., McNair, J. N., and Homola*, J. J. 2015. Removal and mark-recapture methods for estimating abundance: empirical and simulation results for Mottled Sculpin in streams. *North American Journal of Fisheries Management* 35: 62–74.
- McNair, J.N., Gereaux*, L.C., Weinke**, A.D., Sesselmann*, M.R., Kendall, S.T., and Biddanda, B.A. 2013. New methods for estimating components of lake metabolism based on free-water dissolved-oxygen dynamics. *Ecological Modelling* 263: 251–263.
- Sisson*, A.J., Wampler, P.J., Rediske, R.R., McNair, J.N., and Frobish, D. 2013. Long-term field performance of the Biosand Filter in the Artibonite Valley, Haiti. *American Journal of Tropical Medicine and Hygiene* 88: 862–867.
- Homola*, J.J., Scribner, K.T., Elliott, R.F., Donofrio, M.C., Kanefsky, J., Smith, K.M., and McNair, J.N. 2012. Genetically-derived estimates of contemporary natural straying rates and historical gene flow among Lake Michigan lake sturgeon populations. *Transactions of the American Fisheries Society* 141: 1374–1388. (Winner of the 2013 Stevan Phelps Memorial Award from the Genetics Section of the American Fisheries Society as the best genetics paper of the year.)
- McNair, J.N. and Newbold, J.D. 2012. Turbulent particle transport in streams: Can exponential settling be reconciled with fluid mechanics? *Journal of Theoretical Biology* 300: 62–80.

- McNair, J.N., Sunkara*, A., and Frobish, D. 2012. How to analyze seed germination data using statistical time-to-event analysis: nonparametric and semiparametric methods. *Seed Science Research* 22: 77–95.
- Sieg*, A.E., O'Connor, M.P., McNair, J.N., Grant, B.W., Agosta*, S.J., and Dunham, A.E. 2009. Mammalian metabolic allometry: do intraspecific variation, phylogeny, and regression models matter? *American Naturalist* 174: 720–733.
- McNair, J.N. 2009. Two new methods for predicting effects of landcover-related stressors on stream biotic integrity at the catchment scale. *Proceedings of the Academy of Natural Sciences of Philadelphia* 158: 61–88.
- Araújo, A. and McNair, J.N. 2007. Individual- and population-level effects of antimicrobials on the rotifers, *Brachionus calyciflorus* and *B. plicatilis*. *Hydrobiologia* 593: 185–199.
- Johnson, T.E., McNair, J.N., Srivastava, P., and Hart, D.D. 2007. Stream ecosystem responses to spatially variable landcover: a model for developing riparian restoration strategies. *Freshwater Biology* 52: 680–695.
- O'Connor, M.P., Agosta*, S.J., Hansen, F., Kemp*, S.J., Sieg*, A.E., McNair, J.N., and Dunham, A.E. 2007. Phylogeny, regression, and the allometry of physiological traits. *American Naturalist* 170: 431–442.
- O'Connor, M.P., Agosta*, S.J., Hansen, F., Kemp*, S.J., Sieg*, A.E., Wallace*, B.P., McNair, J.N., and Dunham, A.E. 2007. Size, selection, and physiology: Reconsidering the mechanistic basis of the metabolic theory of ecology. *Oikos* 116: 1058–1072.
- McNair, J.N. 2006. Probabilistic settling in the Local Exchange Model of turbulent particle transport. *Journal of Theoretical Biology* 241: 420–437.
- Srivastava, P., McNair, J.N., and Johnson, T.E. 2006. Comparison of process-based and artificial neural network approaches for streamflow modeling in an agricultural watershed. *Journal of the American Water Resources Association* 42: 545–563.
- Fingerut, J.T., Hart, D.D., and McNair, J.N. 2006. Silk use enhances benthic invertebrate settlement. *Oecologia* 150: 202–212.
- Bram, M.R. and McNair, J.N. 2004. Seed germinability and its seasonal onset in three populations of Japanese knotweed. *Weed Science* 52: 759–767.
- McNair, J.N. and Newbold, J.D. 2001. Turbulent transport of suspended particles and dispersing benthic organisms: the hitting-distance problem for the Local Exchange Model. *Journal of Theoretical Biology* 209: 351–369.
- McNair, J.N. 2000. Turbulent transport of suspended particles and dispersing benthic larvae: the hitting-time distribution of the Local Exchange Model. *Journal of Theoretical Biology* 202: 231–246.
- Goulden, C.E., Moeller, R.E., McNair, J.N., and Place, A.R. 1999. Lipid dietary dependencies in zooplankton. Pages 91–108 in: Arts, M.T. and Wainman, B.C. (Eds.) *Lipids in Freshwater Ecosystems*. New York: Springer-Verlag.
- McNair, J.N., Boraas, M.E., and Seale, D.B. 1998. Size-structure dynamics of the rotifer chemostat: a simple physiologically structured model. *Hydrobiologia* 387/388: 469–476.
- Boraas, M.E., Seale, D.B., Boxhorn*, J.E., and McNair, J.N. 1998. Rotifer size distribution changes during transient phases in open cultures. *Hydrobiologia* 387/388: 477–482.
- McNair, J.N., Newbold, J.D., and Hart, D.D. 1997. Turbulent transport of suspended particles and dispersing benthic organisms: how long to hit bottom? *Journal of Theoretical Biology* 188: 29–52.

- McNair, J.N. 1995. Ontogenetic patterns of density-dependent mortality: contrasting stability effects in populations with adult dominance. *Journal of Theoretical Biology* 175: 207–230.
- McNair, J.N., Goulden, C.E., and Ziegenfuss, M.C. 1995. Is there a place for ecotoxicology? *Setac News* 15: 18–21.
- McNair, J.N. and Goulden, C.E. 1991. The dynamics of age-structured populations with a gestation period: density-independent growth and egg ratio methods for estimating the birth rate. *Theoretical Population Biology* 39: 1–29.
- McNair, J.N. 1989. Stability effects of a juvenile period in age-structured populations. *Journal of Theoretical Biology* 137: 397–422.
- McNair, J.N. 1987. Stability effects of prey refuges with entry-exit dynamics. *Journal of Theoretical Biology* 125: 449–464.
- McNair, J.N. 1987. The effect of variability on the optimal size of a feeding territory. *American Zoologist* 27: 249–258.
- McNair, J.N. 1987. A reconciliation of simple and complex models of age-dependent predation. *Theoretical Population Biology* 32: 383–392.
- McNair, J.N. 1986. The effects of prey refuges on predator-prey interactions: a reconsideration. *Theoretical Population Biology* 29: 38–63.
- McNair, J.N. 1985. Optimal foraging for operant conditioners. *Behavior and Brain Science* 8: 343–344.
- Minchella*, D.J., B.K. Leathers, K.M. Brown and J.N. McNair. 1985. Host and parasite counteradaptations: an example from a freshwater snail. *American Naturalist* 126: 843–854.
- McNair, J.N. 1983. A class of patch-use strategies. *American Zoologist* 23: 303–313.
- McNair, J.N. 1982. Optimal giving-up times and the marginal value theorem. *American Naturalist* 119: 511–529.
- McNair, J.N. 1981. A stochastic foraging model with predator training effects: II. Optimal diets. *Theoretical Population Biology* 19: 147–162.
- McNair, J.N. 1980. A stochastic foraging model with predator training effects: I. Functional response, switching, and run lengths. *Theoretical Population Biology* 17: 141–166.
- McNair, J.N. 1979. A generalized model of optimal diets. *Theoretical Population Biology* 15: 159–170.
- McNair, J.N. 1979. A model of tentacle function in certain suctorians. *Journal of Theoretical Biology* 78: 593–610.
- McNair, J.N. 1979. *Moina rostrata*: a new species of Moinidae (Cladocera). *Notulae Naturae, Academy of Natural Sciences of Philadelphia* 457: 1–6.
- McNair, J.N. 1976. Sexual forms and phylogenetic positions of *Moina reticulata* Daday and *Moina minuta* Hansen (Cladocera: Moinidae). *Proceedings of the Academy of Natural Sciences of Philadelphia* 128: 41–48.

Technical Reports

- Thompson, K. and McNair, J.N. 2016. Using high-resolution terrestrial lidar to measure bank erosion. Prepared for Project Clarity (Lake Macatawa, Michigan). Annis Water Resources Institute, Grand Valley State University. 9 pages.

- McNair, J.N. and Thompson, K. 2014. An overview of stream sediment source attribution based on $^{7}\text{Be}/^{210}\text{Pb}_{\text{ex}}$ ratios. Prepared for Project Clarity (Lake Macatawa, Michigan). Annis Water Resources Institute, Grand Valley State University. 6 pages.
- McNair, J.N. and Thompson, K. 2009. WAM model evaluation/future development. Prepared for the South Florida Water Management District. Annis Water Resources Institute, Grand Valley State University. 24 pages.
- McNair, J.N. and Horwitz, R.J. 2009. PCB concentrations in fishes from the Housatonic River, Connecticut, 1984-2008, and benthic insects, 1978-2008. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 93 pages.
- McNair, J.N. 2008. Development and use of an improved tool to maximize the environmental benefits of stream restoration and protection activities in the Schuylkill River watershed. Prepared for U.S. EPA Region 3. Academy of Natural Sciences of Philadelphia. 77 pages.
- McNair, J.N. 2007. Development and use of an improved tool to maximize the environmental benefits of stream restoration and protection activities in the Schuylkill River watershed. Prepared for U.S. EPA Region 3. Academy of Natural Sciences of Philadelphia. 104 pages.
- McNair, J.N. 2007. Development of a watershed management tool to predict and maximize the benefits of riparian restoration projects. Prepared for the Pennsylvania Department of Environmental Protection. Academy of Natural Sciences of Philadelphia. 84 pages.
- McNair, J.N. and Horwitz, R.J. 2007. PCB concentrations in fishes from the Housatonic River, Connecticut, 1984-2006, and benthic insects, 1978-2006. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 86 pages.
- Bouchard, R., Acker, R., Depew, M., Horwitz, R.J., McNair, J.N., and Velinsky, D. 2006. 2005 Sabine River studies for the Texas Eastman Division, Eastman Chemical Company. Prepared for the Texas Eastman Division, Eastman Chemical Company. Academy of Natural Sciences of Philadelphia. 151 pages.
- McNair, J.N. 2005. Enhancing the effectiveness of vegetation restoration and maintenance activities in Philadelphia's Fairmount Park system. Prepared for the William Penn Foundation. Academy of Natural Sciences of Philadelphia. 56 pages.
- McNair, J.N. 2005. An assessment of selected management practices for invasive Japanese knotweed and Norway maple in Philadelphia's Fairmount Park System. Prepared for the Fairmount Park Commission. Academy of Natural Sciences of Philadelphia. 50 pages.
- McNair, J.N. 2005. A Review of the Normandeau Report on Potential Short-term Biological Impacts of a Fly Ash Spill at the PPL Martins Creek, LLC Power Plant. Prepared for PPL Martins Creek LLC. Academy of Natural Sciences of Philadelphia.
- McNair, J.N. 2005. An overview of the 2003 biological studies of the Guadalupe River. Prepared for INVISTA S.a.r.l. Academy of Natural Sciences of Philadelphia. 22 pages.
- McNair, J.N. and Horwitz, R.J. 2005. PCB concentrations in fishes from the Housatonic River, Connecticut, 1984-2004, and benthic insects, 1978-2005. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 89 pages.
- Bouchard, R., Charles, D., Horwitz, R.J., Marshall, B., McNair, J.N. and Velinsky, D. 2005. Biological and Chemical Studies of the Guadalupe River, 2003. Prepared for INVISTA S.a.r.l. Academy of Natural Sciences of Philadelphia. 151 pages.
- McNair, J.N., Johnson, T. and Srivastava, P. 2004. A watershed-level assessment to guide restoration planning and maximize the benefits of riparian restoration. Prepared for Pennsylvania Department of Environmental Protection. Academy of Natural Sciences of Philadelphia. 60 pages.

- Brown, R., Hart, D.D. and McNair, J.N. 2004. A Risk Assessment Framework for Determining the Potential Ecological Effects of Dam Removal. Prepared for Pennsylvania Department of Environmental Protection. Academy of Natural Sciences of Philadelphia. 105 pages.
- McNair, J.N. and Horwitz, R.J. 2003. PCB concentrations in fishes from the Housatonic River, Connecticut, 1984-2002, and benthic insects, 1978-2002. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 48 pages.
- Srivastava, P., Carr, Hart, D.D. and McNair, J.N. 2003. A compilation and evaluation of stream restoration projects: learning from past projects to improve future success. Prepared for the William Penn Foundation. Academy of Natural Sciences of Philadelphia. 73 pages.
- McNair, J.N. 2002. An overview of the 2001 biological studies of the Guadalupe River. Prepared for E.I. du Pont de Nemours & Company, Victoria, Texas. Academy of Natural Sciences of Philadelphia. 16 pages.
- McNair, J.N. and Horwitz, R.J. 2001. PCB concentrations in fishes from the Housatonic River, Connecticut, 1984-2000, and in benthic insects, 1978-2001. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 70 pages.
- McNair, J.N. 2001. An overview of the 2000 biological and chemical studies of the Guadalupe River. Prepared for E.I. du Pont de Nemours & Company, Victoria, Texas. Academy of Natural Sciences of Philadelphia. 19 pages.
- McNair, J.N., Acker, F., Charles, D., Horwitz, R.J. and Marshall, B. 2000. Biological studies on the upper Delaware River: Final Report. Prepared for Roche Vitamins, Inc. Academy of Natural Sciences of Philadelphia. 99 pages.
- Kreeger, D. and McNair, J.N. 2000. Algal bioconcentration of radionuclides: 2000 Special “BCF” study - Phase II: Bioconcentration of Cs-137 by the green algal *Ankistrodesmus falcatus* in exponential and stationary phase. Prepared for PPL Susquehanna, LLC. Academy of Natural Sciences of Philadelphia. 31 pages.
- Bouchard, R., Charles, D., Horwitz, R.J., Marshall, B., McNair, J.N. and Velinsky, D. 2000. Biological and chemical studies of the Guadalupe River, 1999. Prepared for E.I. du Pont de Nemours & Company, Victoria, Texas. Academy of Natural Sciences of Philadelphia.
- Bouchard, R., Acker, F., Grant, R., Hart, D.D., Horwitz, R.J., McNair, J.N. and Velinsky, D. 2000. 1999 Savannah River Biological Surveys for Westinghouse Savannah River Company. Prepared for Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 235 pages.
- McNair, J.N. 1999. Review of Nitrate and Nitrite on the Guadalupe River, 1998-1999. Prepared for E.I. du Pont de Nemours & Company, Victoria, Texas. Academy of Natural Sciences of Philadelphia. 10 pages.
- McNair, J.N. 1999. An Overview of Biological and Chemical Studies of the Guadalupe River, 1996-1997. Prepared for E.I. du Pont de Nemours & Company, Victoria, Texas. Academy of Natural Sciences of Philadelphia.
- Biggs, R.B., Horwitz, R.J., McNair, J.N. 1999. The Delaware Estuary Ecosystem. Prepared for Public Service Electric and Gas. Academy of Natural Sciences of Philadelphia. 412 pages.
- Horwitz, R.J. and McNair, J.N. 1999. PCB Concentrations in Fishes and Benthic Insects from the Housatonic River, Connecticut, in 1984 to 1998. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 50 pages.
- Bouchard, R., Acker, F., Grant, R., Hart, D.D., Horwitz, R.J., McNair, J.N. and Velinsky, D. 1999. 1998 Savannah River Biological Surveys for Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 246 pages.

- McNair, J.N., Acker, F., Bouchard, R., Hart, D.D., Horwitz, R.J., and Velinsky, D. 1998. Aquatic field studies in the Congaree River near Columbia, South Carolina, 1997. Prepared for the Carolina Eastman Division of Eastman Chemical Company. Academy of Natural Sciences of Philadelphia. 139 pages.
- McNair, J.N., Acker, F., Bouchard, R., Hart, D.D., Horwitz, R.J. and Velinsky, D. 1998. Aquatic field studies in the vicinity of Kingsport, Tennessee, 1997. Prepared for Tennessee Eastman Division of Eastman Chemical Company. Academy of Natural Sciences of Philadelphia. 213 pages.
- Bouchard, R., Acker, F., Grant, R., Horwitz, R.J., Marshall, B., McNair, J.N. 1998. 1997 Savannah River biological surveys for Westinghouse Savannah River Company. Prepared for Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 201 pages.
- McNair, J.N. and Horwitz, R.J. 1997. PCB concentrations in fishes and benthic insects from the Housatonic River, Connecticut, in 1984 to 1996. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 47 pages.
- McNair, J.N. 1997. An assessment of the U.S. Fish and Wildlife Service's literature review of mercury effects on fish and wildlife resources. Prepared for Aluminum Company of America. Academy of Natural Sciences of Philadelphia. 185 pages.
- McNair, J.N., Bouchard, R., Grant, R., Hart, D.D., Horwitz, R.J. and Velinsky, D. 1997. Aquatic field studies in the White River near Batesville, Arkansas. Prepared for Arkansas Eastman Division of Eastman Chemical. Academy of Natural Sciences of Philadelphia. 172 pages.
- Bouchard, R., Acker, F., Grant, R., Hart, D.D., Horwitz, R.J., McNair, J.N. and Velinsky, D. 1997. 1996 Savannah River biological surveys for Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 336 pages.
- McNair, J.N., Grant, R., Hart, D.D. and Horwitz, R.J. 1996. Savannah River cursory surveys for Westinghouse Savannah River Company, 1995. Prepared for Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 131 pages.
- McNair, J.N. 1996. An assessment of the U.S. Fish and Wildlife Service's Phase II report on accumulation of mercury in sediments, prey, and shorebirds of Lavaca Bay. Aluminum Company of America. Academy of Natural Sciences of Philadelphia. 11 pages.
- McNair, J.N. 1996. Addendum to Academy of Natural Sciences Report No. 94-23F: Potential biological impacts of altered metal and nutrient loadings to the Guadalupe River. Prepared for E.I. du Pont de Nemours & Company, Victoria, Texas. Academy of Natural Sciences of Philadelphia.
- Bouchard, R., Grant, R., Hart, D.D., Horwitz, R.J., McNair, J.N., and Velinsky, D. 1996. 1995 Sabine River studies for Texas Eastman Company. Prepared for Texas Eastman Division of Eastman Chemical Company. Academy of Natural Sciences of Philadelphia. 193 pages.
- Bouchard, R., Grant, R., Hart, D.D., Horwitz, R.J., Isquith, M. and McNair, J.N. 1996. 1995 Savannah River biological survey in the vicinity of Georgia Power and Light's Vogtle Nuclear Power Plant Site for Westinghouse Savannah River Company. Prepared for Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 221 pages.
- McNair, J.N. and Horwitz, R.J. 1995. PCB concentrations in fishes and benthic insects from the Housatonic River, Connecticut, in 1984 to 1994. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 103 pages.
- McNair, J.N. 1995. Potential biological impacts of altered metal and nutrient loadings to the Guadalupe River. Prepared for E.I. du Pont de Nemours & Company, Victoria, Texas. Academy of Natural Sciences of Philadelphia. 23 pages.

- McNair, J.N. 1995. Biological and mixing zone studies on the upper Delaware River. Final Report. Prepared for Hoffmann LaRoche, Inc. Academy of Natural Sciences of Philadelphia. 128 pages.
- Bouchard, R., Grant, R., Hermanson, Hart, D.D., Horwitz, R.J., Isquith, M. and McNair, J.N. 1995. 1994 Savannah River biological survey in the vicinity of Georgia Power and Light's Vogtle Nuclear Power Plant site for Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 196 pages.
- McNair, J.N. and Riedel, F. 1994. Projected impacts of altered metal and nutrient loadings to the Guadalupe River. Prepared for E.I. du Pont de Nemours & Company, Victoria, Texas. Academy of Natural Sciences of Philadelphia. 16 pages.
- McNair, J.N. and Newbold, J.D. 1994. Issues regarding estimated impacts of the lower Susquehanna River reservoir system on sediment and nutrient discharge to Chesapeake Bay. Prepared for Safe Harbor Water Power Corp. Academy of Natural Sciences of Philadelphia. 20 pages.
- McNair, J.N. 1994. Preliminary assessment of data from the U.S. Fish and Wildlife Service's 1991-1992 Lavaca Bay injury study. Aluminum Company of America. Academy of Natural Sciences of Philadelphia. 22 pages.
- Horwitz, R.J. and McNair, J.N. 1994. PCB concentrations in fishes from the Housatonic River, Connecticut, in 1984 to 1992: Addendum. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 17 pages.
- Bouchard, R., Grant, R., Hart, D.D., Horwitz, R.J. and McNair, J.N. 1994. Progress report on 1993 river quality surveys conducted by The Academy of Natural Sciences of Philadelphia on the Savannah River. Prepared for the Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 17 pages.
- Bouchard, R., Acker, F., Grant, R., Hart, D.D., Hermanson, Horwitz, R.J. and McNair, J.N. 1994. Savannah River biological surveys, 1993. Prepared for the Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia.
- McNair, J.N., Kiry, P., Bouchard, R., Sweeney, B. and Horwitz, R.J. 1993. White River studies, 1991. Prepared for the Arkansas Eastman Division of the Eastman Chemical Company. Academy of Natural Sciences of Philadelphia. 197 pages.
- McNair, J.N. 1993. Rainbow trout acute toxicity tests for Quaker Chemical Corporation. Prepared for Quaker Chemical Corporation. Academy of Natural Sciences of Philadelphia. 12 pages.
- Horwitz, R.J. and McNair, J.N. 1993. PCB concentrations in fishes from the Housatonic River, Connecticut in 1984-1992. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 146 pages.
- McNair, J.N., Kiry, P., Jackson, J., Bouchard, R. and Horwitz, R.J. 1992. 1991 Studies on the White River: Interim report. Arkansas Eastman Division of the Eastman Chemical Company. Academy of Natural Sciences of Philadelphia. 12 pages.
- McNair, J.N. 1992. Data report on results of 48-h *Daphnia magna* bioassay of methyl anthranilate toxicity, for Monell Chemical Senses Center. Academy of Natural Sciences of Philadelphia. 38 pages.
- Bouchard, R., Acker, F., Grant, R., Hermanson, M., Horwitz, R.J., Isquith, M. and McNair, J.N. 1992. Preliminary report of Savannah River water quality surveys for Westinghouse Savannah River Company. Academy of Natural Sciences of Philadelphia. 8 pages.
- McNair, J.N. and Brennan, D. 1991. Metals studies on the Guadalupe River, 1989. Prepared for E.I. du Pont de Nemours & Company. Academy of Natural Sciences of Philadelphia. 50 pages.

- McNair, J.N. 1991. Status and trends of toxic pollutants in the Delaware Estuary. Prepared for the Delaware Estuary Program and U.S. EPA. Academy of Natural Sciences of Philadelphia. 177 pages.
- McNair, J.N. 1991. Results of the model search and selection process for the Niagara River and Lake Ontario. Prepared for BCM Engineers, Inc. and Occidental Chemical Co. Academy of Natural Sciences of Philadelphia. 7 pages.
- Horwitz, R.J. and McNair, J.N. 1991. PCB concentrations in fishes from the Housatonic River, Connecticut in 1984-1990. Prepared for General Electric Company. Academy of Natural Sciences of Philadelphia. 132 pages.
- McNair, J.N. and Goulden, C.E. 1990. Chronic bioassay tests of prechlorination effluent for the City of Philadelphia's Southeast water pollution control plant: Second monthly test. Prepared for the City of Philadelphia. Academy of Natural Sciences of Philadelphia. 9 pages.
- McNair, J.N. and Goulden, C.E. 1990. Chronic bioassay tests of prechlorination effluent for the City of Philadelphia's Southeast water pollution control plant: First monthly test. Prepared for the City of Philadelphia. Academy of Natural Sciences of Philadelphia. 9 pages.
- McNair, J.N. and Goulden, C.E. 1989. Divinylbenzene bioassay conducted for the City of Philadelphia Water Department. Academy of Natural Sciences of Philadelphia. 15 pages.
- Horwitz, R.J., McNair, J.N. and Ford, E. 1989. A literature review of methanol in aquatic ecosystems and a conceptual proposal for modeling studies. Prepared for the Sun Oil Company. Academy of Natural Sciences of Philadelphia. 22 pages.

Seminars and Presentations (*: graduate student, **: undergraduate student)

- McNair, J.N., Rediske, R.R., Briggs, S. 2024. Some recent patterns of recreational water quality in Michigan's inland lakes. Oral presentation at the 2024 Michigan Inland Lakes Convention, 3 October 2024, Grand Rapids, MI. Presenter: McNair.
- McNair, J.N., Suh, J., DeNicola, D.M. 2024. A stochastic model of disturbance effects on benthic community succession and patch dynamics in streams: Some analytical results. Oral presentation at the 2024 Annual Meeting of the Society for Freshwater Science, 6 June 2024, Philadelphia, PA. Presenter: McNair.
- McNair, J.N. 2023. Validity Assessment of Michigan's proposed qPCR threshold value for monitoring *E. coli* contamination. Oral presentation at the 2024 Annual Meeting, American Water Resources Association, 8 November 2023, Raleigh, NC. Presenter: McNair.
- Hart*, J., Jamison*, M., Porter, A., McNair, J., Szlag, D., Rediske, R. 2023. Fecal impairment framework, a new screening tool for assessing fecal contamination in recreational waters. Oral presentation at the 62nd Annual MLSA Conference, May 2023, Thompsonville, MI. Presenter: Hart.
- McNair, J.N. 2022. Validity assessment of Michigan's proposed qPCR threshold value for monitoring *E. coli* contamination. Oral presentation at the 2022 Great Lakes Beach Conference, 1 November 2022, Muskegon, Michigan. Presenter: McNair.
- McNair, J.N. and Zuidema*, J.R. 2022. Estimating habitat-specific metabolic rates in streams with marked longitudinal habitat variation. Oral presentation at the 2022 Joint Aquatic Sciences Meeting, Grand Rapids, Michigan, 20 May 2022. Presenter: McNair.
- McNair, J.N., Lane, M.J., and Rediske, R.R. 2021. A decision-theoretic framework for assessing the relationship between culture-based and qPCR-based recreational water-quality criteria for fecal indicator bacteria. Oral presentation at the 2021 Annual Meeting, American Water Resources Association, 6 November 2021, presented virtually via Zoom. Presenter: McNair.

- McNair, J.N. and Thum, R.A. 2020. Some useful sampling and statistical methods for assessing potential abundance changes in aquatic plant surveys. Oral presentation (virtual) at the 2020 Annual Michigan Inland Lakes Convention, 18 September 2020. Presenter: McNair.
- Neuman*, E., Woznicki, S.A., Karol, K.G., McNair, J.N., and Hamsher, S.E. 2020. Predictive modeling assessment of suitable habitats for Starry Stonewort (*Nitellopsis obtusa*). Poster presentation (virtual), 2020 Upper Midwest Invasive Species Conference, 6 November 2020. Presenter: Neuman.
- Neuman*, E., Karol, K.G., Woznicki, S.A., McNair, J.N., Hamsher, S.E. 2020. Preliminary results – Star Wars: Phenology of the aquatic invasive species starry stonewort (*Nitellopsis obtusa*; Characeae) in two Michigan drowned river-mouth lakes. Oral presentation (virtual) at the 2020 Michigan Space Grant Consortium Conference, 17 October 2020. Presenter: Neuman.
- Yap**, C., Ruetz III, C., McNair, J.N. 2020. A new computer program to evaluate biases in the two-sample mark-recapture abundance estimator. Poster presentation (virtual) at the 2020 Annual Meeting, Michigan Chapter of the American Fisheries Society, Mt. Pleasant, Michigan, 12 March 2020. Presenter: Yap.
- McNair, J.N. 2019. Estimating components of stream metabolism by the free-water dissolved-oxygen method: Where did the oxygen come from? Oral presentation at the 2019 Annual Meeting, American Water Resources Association, Salt Lake City, Utah, 6 November 2019. Presenter: McNair.
- McNair, J.N. and Zuidema*, J.R. 2018. Comparison of alternative estimators of stream metabolism derived within a common modeling framework. Oral presentation at the 2018 Annual Meeting, American Water Resources Association, Baltimore, Maryland, 8 November 2018. Presenter: McNair.
- Rice*, E.K. and McNair, J.N. 2018. Assessment of baby's breath (*Gypsophila paniculata*) removal in the northwest Michigan dunes. Oral presentation at the 2018 Annual Meeting, Ecological Society of America, New Orleans, Louisiana, 9 August 2018. Presenter: Rice.
- Rice*, E.K. and McNair, J.N. 2018. Assessment of baby's breath (*Gypsophila paniculata*) removal in the northwest Michigan dunes . Oral presentation at the Society for Ecological Restoration Midwest-Great Lakes Chapter Meeting, Stevens Point, Wisconsin, 20 April 2018. Presenter: Rice.
- DeNicola, D., McNair, J.N., and Suh, J. 2018. A stochastic model of epilithic algal succession and patch dynamics in streams. Oral presentation at the 2018 Annual Meeting, Society for Freshwater Science, Detroit, Michigan, 23 May 2018. Presenter: DeNicola.
- McNair, J.N. and Thompson, K.J. 2017. Using high-resolution terrestrial lidar to measure stream bank erosion/deposition. Oral presentation at the Annual Meeting, American Water Resources Association, Portland, Oregon, 9 November 2017. Presenter: McNair.
- Rice*, E.K. and McNair, J.N. 2017. Phenology of seed maturation and the effect of glyphosate on *Gypsophila paniculata* (baby's breath) seed maturation. Poster presentation at the Society for Ecological Restoration Midwest-Great Lakes Chapter Meeting, Grand Rapids, Michigan, 24 March 2017. Presenter: Rice.
- Rice*, E.K. and McNair, J.N. 2017. Phenology of seed maturation in invasive baby's breath (*Gypsophila paniculata*) and its importance for restoring coastal sand dune communities in Michigan. Poster presentation at the Annual Meeting, Ecological Society of America, Portland, Oregon, 7 August 2017. Presenter: Rice.
- Feng, Y., Wijesinghe, R.U., and McNair, J.N. 2017. Survival of *Bacteroidales* in stream water and sediment. The third International Conference on Water Resource and Environment. 26–29 June 2017. Qingdao, China. Presenter: Feng.

- McNair, J.N., Thum, R. A., and Parks, S. R. 2016. Modeling lake invasions by cryptic watermilfoil taxa and their eco-evolutionary responses to management. Oral presentation at the Annual Meeting, Society for Freshwater Science, Sacramento, California, 25 May 2016. Presenter: McNair.
- McNair, J.N. 2016. REU-QUEST: An NSF-funded summer research experience for undergraduates at the Annis Water Resources Institute. Oral presentation to the Biology Department of the University of Missouri at St. Louis, 15 Mar 2016.
- McNair, J.N. 2016. Reducing effects of dispersal on the bias of 2-sample mark-recapture abundance estimators. Oral presentation at the Midwest Fish & Wildlife Conference, Grand Rapids, Michigan, 27 Jan 2016.
- Cahill, B.C., Monfils, A.K., Monfils, M.J., Chadderton, W.L., Tucker, A.J., Tynning, P., Hausler, P., Thum, R., and McNair, J.N. 2016. Carolina Fanwort (*Cabomba caroliniana*): Research efforts towards an integrated management plan. Presented September 2016 at the 2016 Upper Midwest Invasive Species Conference. Presenter: Cahill.
- Parks, S., Thum, R.A., and McNair, J.N. 2016. Adaptive plant management strategies as a means to improve invasive plant control. Presented 8 March 2016 at the Midwest Aquatic Plant Management Society Conference, Grand Rapids, Michigan. Presenter: Parks.
- Thum, R.A., S. Parks, J.N. McNair, P.J. Tynning, P.J. Hausler, Paul, A.K. Monfils, H.E. Dame, W.L. Chadderton and A.J. Tucker. 2016. Monitoring sources of regrowth of Eurasian watermilfoil following auxinic herbicide treatment in Gun Lake, Michigan. Presented 8 March 2016 at the Midwest Aquatic Plant Management Society Conference, Grand Rapids, Michigan. Presenter: Thum.
- Parks, S., Thum, R.A., and McNair, J.N. 2016. How adopting an adaptive plant management framework can improve invasive plant management. Presented 11 March 2016 at the Indiana Lakes Management Society Conference, Plymouth, Indiana. Presenter: Parks.
- Parks, S., R.A. Thum, and J.N. McNair. 2016. Response of pure versus hybrid Eurasian watermilfoil under operational management with auxinic herbicides and implications for adaptive management program planning. Presented 8 March 2016 at the 36th Annual Meeting of the Midwest Aquatic Plant Management Society, Grand Rapids, Michigan.
- McNair, J.N. 2015. A general framework for deriving alternative estimators of GPP, R, and NP in streams by the free-water dissolved-oxygen method. Oral presentation at the Stroud Water Research Center, Avondale, Pennsylvania, 15 December 2015.
- McNair, J.N. 2015. REU-QUEST: An NSF-funded summer research experience for undergraduates at the Annis Water Resources Institute. Oral presentation to the Biology Department of the University of Missouri at St. Louis, 29 Apr 2015.
- McNair, J.N. 2015. Biostatistics applications at GVSU's Annis Water Resources Institute. Oral presentation to the Department of Statistics, Grand Valley State University, 26 Mar 2015.
- McNair, J.N., Thum, R.A., Parks*, S., and Schulte*, L. 2014. Modeling the spread of invasive Eurasian watermilfoil in northern lakes of the United States: Contemporary evolution, environment, and management. Oral presentation at the Joint Aquatic Sciences Meeting, Portland, Oregon, 23 May 2014. Presenter: McNair.
- Thum, R.A., Grimm**, D., and McNair, J.N. 2014. Hybridization and rapid evolution of invasiveness in a heavily managed invasive aquatic plant species. Oral presentation at the Joint Aquatic Sciences Meeting, Portland, Oregon, 20 May 2014. Presenter: Thum.
- McPherson*, M.R. and McNair, J.N. 2014. Estimating lake metabolism using the free water method and a 1-d hydrodynamic model. Oral presentation at the Joint Aquatic Sciences Meeting in Portland, Oregon, 22 May 2014. Presenter: McPherson.

- Ruetz, C.R., Janetski, D.J., Woods**, J.L., Waller**, J.C., and McNair, J.N. 2014. Drift settling rates of benthic macroinvertebrates: evaluating turbulent transport dynamics of particles in streams. Oral presentation at the Joint Aquatic Sciences Meeting, Portland, Oregon, 23 May 2014. Presenter: Ruetz.
- McNair, J.N., Sesselmann*, M.R., Gereaux*, L.C., Weinke**, A.D., Kendall, S.T., and Biddanda, B.A. 2014. New approaches for estimating components of lake metabolism by the free-water dissolved-oxygen method. Oral presentation at the NOAA Muskegon Lake Summit, 28 April 2014. Presenter: McNair.
- McNair, J. N., Biddanda, B., and Rediske, R. 2014. Stoichiometry and aquatic food web models. Oral presentation at the NOAA Muskegon Lake Summit, 28 April 2014. Presenter: McNair.
- McNair, J.N., Gereaux*, L.C., Weinke**, A.D., Sesselmann*, M.R., Kendall, S., and Biddanda, B.B. 2013. Alternative methods for estimating components of lake metabolism using process-based models of dissolved-oxygen dynamics. Oral presentation at the 2nd Bioinformatics and Computational Biology Symposium, GVSU, Allendale, Michigan, 12 September 2013. Presenter: McNair.
- McNair, J.N., Gereaux*, L.C., Weinke**, A.D., Sesselmann*, M.R., Kendall, S.T., and Biddanda, B.A. 2013. Alternative methods for estimating components of lake metabolism using process-based models of dissolved-oxygen dynamics. Oral presentation at the Annual Meeting, Society for Freshwater Science, Jacksonville, Florida, 22 May 2013. Presenter: McNair.
- Snyder, E., McNair, J., Morrison**, N., and Krause**, M. 2013. FPOM transport modeling: Surface and mid-depth injection using corn pollen as an analog. Poster presentation at the Annual Meeting, Society for Freshwater Science, Jacksonville, Florida, 22 May 2013.
- Ruetz, C., Harris**, B., McNair, J., and Homola*, J. 2013. Mark-recapture and removal methods for estimating sculpin abundance in streams. Oral presentation at the Annual Meeting, Society for Freshwater Science, Jacksonville, Florida, 22 May 2013. Presenter: Ruetz
- McNair, J.N., Gereaux*, L.C., Weinke**, A.D., Sesselmann*, M.R., Kendall, S.T., and Biddanda, B.A. 2013. Using quasi-mechanistic statistical models and high-frequency sensor data to estimate components of lake metabolism. Oral presentation at the Annual Meeting, Association for the Study of Oceanography and Limnology, New Orleans, Louisiana, 20 February 2013. Presenter: McNair.
- McNair, J. N., Ruetz, C. R. III, and Harris**, B. S. 2012. How much bias does migration cause in 2-sample mark-recapture estimators of stream fish abundance? Seminar presented at the 2012 Annual Meeting of the American Water Resources Association, Jacksonville, Florida, 12 November 2011. Presenter: McNair.
- McNair, J. N. 2012. Turbulent transport of ecologically important particles in streams. Seminar presented at the Bioinformatics and Computational Biology Symposium, held on the Allendale campus, 26 October 2012.
- Harris**, B. S., Ruetz, C. R. III, Homola*, J. J., and McNair, J. N. 2012. Evaluating removal and mark-recapture methods for estimating abundance of a small, non-game fish. Oral presentation at the American Fisheries Society Meeting in St. Paul, Minnesota, August 2012. Presenter: Harrison.
- Homola*, J. J., Scribner, K. T., Elliott, R. F., Donofrio, M. C., Kanefsky, J., Smith, K. M., and McNair, J. N. 2012. Genetically-derived estimates of contemporary natural straying rates and historical gene flow among Lake Michigan lake sturgeon populations. Oral presentation at the American Fisheries Society Meeting in St. Paul, Minnesota, August 2012. Presenter: Homola.
- McNair, J. N. and Rediske, R. R. 2012. An overview of pharmaceuticals in the environment. Oral presentation to a physician continuing-education conference held at Mercy Health Partners' Hackley Campus, Muskegon, Michigan, 9 May 2012. Presenter: McNair.

- McNair, J. N. 2012. Transport of biological particles in streams: do particles really settle exponentially, and why does it matter? Oral presentation at AWRI's Ecolunch internal seminar series, 3 Feb 2012.
- McNair, J. N. 2011. Transport of biological particles in streams: do particles really settle exponentially, and should they? Seminar presented at the 2011 Annual Meeting of the American Water Resources Association, Albuquerque, New Mexico, 10 November 2011.
- McNair, J. N. 2011. How should seed germination data be analyzed? An interdepartmental collaborative research project at GVSU. Seminar presented to the GVSU College of Liberal Arts and Sciences Faculty Research Colloquium, 17 Feb 2011.
- McNair, J. N. 2010. Including reaction stoichiometry in aquatic food web and ecosystem models. Seminar presented at Stroud Water Research Center, Avondale, Pennsylvania, 5 November 2010.
- McNair, J. N. 2010. A review of empirical studies of particle transport in streams: is fluid mechanics important, and shouldn't we be able to tell? Seminar presented to the GVSU College of Liberal Arts and Sciences Faculty Research Colloquium, 15 Oct 2010.
- McNair, J. N. 2010. Applying the Local Exchange Model to stream seston and benthic macroinvertebrate data. Seminar presented at the 2010 Summer Meeting of the American Society of Limnology and Oceanography, Santa Fe, New Mexico, 12 Jun 2010.
- McNair, J. N. 2010. The Local Exchange Model of turbulent particle transport in streams. Seminar presented to the GVSU College of Liberal Arts and Sciences Faculty Research Colloquium, 21 Jan 2010.
- Horwitz, R. J., Mead, J., Raus, A., Babcock-Stiner, J., McNair, J. N., and Velinsky, D. 2009. Comprehensive watershed management planning in Chautauqua Lake (New York, USA). Oral presentation at the 13th World Lake Conference, Wuhan, China, 3 November 2009. Presenter: Horwitz.
- McNair, J. N. 2009. Transport processes as a unifying conceptual framework in science and engineering. Seminar presented to faculty and students in GVSU's NSF Summer Mathematics REU (Research Experience for Undergraduates) Site Program.
- McNair, J. N. 2009. Transport processes as a unifying conceptual framework in basic and applied ecology. Presented to the GVSU Biology Department, April, 2009.
- McNair, J. N. 2008. Transport processes as a unifying conceptual framework in basic and applied ecology. Invited seminar presented to the Annis Water Resources Institute, Grand Valley State University, 6 October 2008.
- McNair, J. N. 2007. Strategic land protection and restoration to maximize stream ecological integrity: development and implementation of a GIS-based decision-support tool. Invited seminar presented to the Department of Marine and Ecological Sciences, Florida Gulf Coast University, 12 June 2007.
- McNair, J. N. 2007. Strategic land protection and restoration to maximize stream ecological integrity: development and implementation of a GIS-based decision-support tool. Invited seminar presented to U.S. EPA Region 3, 5 June 2007.
- McNair, J. N. 2007. The Local Exchange Model of turbulent particle transport in streams. Invited seminar presented to the Department of Biology, University of Akron, 20 May 2007.
- McNair, J. N. 2006. An overview of PPCPs (pharmaceuticals and personal care products) in the environment. Invited seminar presented to U.S. EPA Region 3, Philadelphia, PA, 27 October 2006.
- McNair, J. N., Srivastava, P., Johnson, T. E., and Hart, D. D. 2004. A watershed approach to determining the benefits of riparian restoration. 2004 Wetlands Workshop, Atlantic City, NJ, 25 October 2004.

- McNair, J. N. 2003. The ecology and control of invasive Japanese knotweed in urban parks of Philadelphia. Invited seminar presented at the 2003 Wetlands Workshop, Atlantic City, NJ, 28 October 2003.
- McNair, J. N. 2003. On-going studies of Japanese knotweed in Philadelphia's urban parks. Invited seminar presented at the conference on "Aquatic Invaders of the Delaware Estuary", sponsored by NOAA, Pennsylvania Sea Grant, Delaware Estuary Program, Partnership for the Delaware Estuary, and Pennsylvania Department of Environmental Protection's Coastal Zone Management Program, held at Penn State Great Valley, 20 May 2003.
- McNair, J. N. and Srivastava, P. 2003. Artificial neural networks as a tool in watershed hydrology. Invited seminar presented at the 2003 American Water Resources Association Mid-Atlantic Region Conference on "Technology Advances in Water Resources", Philadelphia, PA, 1 May 2003.
- McNair, J. N. 2002. Stochastic and deterministic models of stream insect transport on different spatial scales. Invited seminar presented to the Department of Biology, University of Pennsylvania, 10 December 2002.
- McNair, J. N. 2002. Adaptive management project update: results of project year 3. Seminar presented to the Natural Lands Restoration and Environmental Education Program, Fairmount Park Commission, January 2002.
- McNair, J. N. 2001. Adaptive management of invasive exotic plants in Philadelphia's Fairmount Park system. Invited seminar presented to the Pennsylvania Deer Management Forum, Harrisburg, PA, 18 December 2001.
- McNair, J.N. 2001. The local exchange model: a simple stochastic diffusion model of turbulent particle transport. Invited paper presented at the 2001 American Society of Limnology and Oceanography meeting, Albuquerque, NM.
- McNair, J. N. 2001. Ongoing studies of two invasive species (Japanese knotweed and Norway maple) in woodlands of Philadelphia's Fairmount Park system. Lecture presented to the Department of Biology, University of Pennsylvania.
- McNair, J.N. 2000. Particle transport by turbulent fluids: dispersal of seeds, pollen, fine particulate organic matter, and benthic invertebrate larvae. Invited lecture, Department of Biology, University of Pennsylvania.
- McNair, J.N. 1998. Towards a theory of stressed populations, with applications to the rotifer chemostat. Invited lecture, Department of Biology, University of Pennsylvania.
- McNair, J. N., Boraas, M.E., and Seale, D.B. 1997. Size-structure dynamics of the rotifer chemostat: a simple physiologically structured model. Paper presented at the VIII International Rotifer Symposium, held at St. John's University, Collegeville, Minnesota.
- McNair, J. N. 1996. Population consequences of allocation in a physiologically structured model of the rotifer chemostat. Invited lecture, international symposium on "Resource Allocation Processes: the Connection Between Individual and Population Levels of Biological Organization", held at the University of Georgia's Savannah River Ecology Laboratory.
- McNair, J.N. 1996. Classical versus physiologically structured models of the rotifer chemostat. Department of Biological Sciences, University of Wisconsin, Milwaukee.
- McNair, J.N. 1995. A simple physiologically structured model of a rotifer chemostat. American Society of Zoologists Annual Meeting.
- McNair, J.N. 1995. Classical versus physiologically structured models of rotifer population dynamics in a chemostat. Department of Biology, University of Pennsylvania.

- McNair, J.N. 1994. Physiologically structured population models: techniques for theoretical and applied ecology. Invited lecture, Department of Ecology and Evolutionary Biology, University of California at Irvine.
- McNair, J.N. 1994. Physiologically structured population models: bridging the gap between theoretical and applied ecology. Invited lecture, Biology Department, Davidson College.
- McNair, J.N. 1993. Continuum population models. Department of Biology, University of Pennsylvania.
- McNair, J.N. 1989. On the “principle of prey protection” in predator-prey interactions. Invited lecture, Department of Biology, Pennsylvania State University.
- McNair, J.N. 1989. Causes of spontaneous oscillation in age- and density-dependent population growth. Invited lecture, Department of Biology, Pennsylvania State University.
- McNair, J.N. 1987. Refuges and other sources of prey protection: their effects on predator-prey dynamics. Invited lecture, Department of Ecology and Evolutionary Biology, University of California, Irvine.
- McNair, J.N. 1987. Refuges and other sources of prey protection: their effects on predator-prey dynamics. Invited lecture, Department of Biology, University of California, Riverside.
- McNair, J.N. 1986. Refuges and other sources of prey protection: their effects on predator-prey dynamics. Invited lecture, Zoologische Museum der Universität Zürich (Switzerland).
- McNair, J.N. 1985. Predator-prey interactions with refuges: What do we really know? Invited lecture, Department of Biology, Indiana University.
- McNair, J.N. 1984. The effects of variability on the optimal size of a feeding territory. Invited lecture, Symposium on Territoriality, American Society of Zoologists Annual Meeting.
- McNair, J.N. 1983. Destabilizing effects of prey refuges on predator-prey interactions. American Society of Zoologists Annual Meeting.
- McNair, J.N. 1982. A class of foraging models for optimal patch use. Invited lecture, Annual Midwest Population Biology Conference.
- McNair, J.N. 1982. Dynamic prey refuges in predator-prey interactions. Invited lecture, Department of Ecology, Ethology, and Evolution, University of Illinois.
- McNair, J.N. 1981. Some implications of predator training effects for foraging theory. Invited lecture, Symposium on Foraging Ecology, Ecological Society of America Annual Meeting.
- McNair, J.N. 1981. Some consequences of predator training effects. Invited lecture, Kellogg Biological Station, Michigan State University.
- McNair, J.N. 1981. A class of patch-use strategies. Invited lecture, Symposium on Optimization of Behavior, American Society of Zoologists Annual Meeting.

Selected Grants and Contracts

Current Funded Projects

- McNair, J.N. 2023–2024. Assessment of inter-lake variation in performance of Michigan’s proposed qPCR-based threshold value for beach notifications, and development of a conceptual framework for developing lake-specific adjustments of the proposed state-wide threshold. Role: PI. Funded by supplemental funds from Michigan EGLE’s Real-Time Beach Monitoring program: \$16,906.
- Thum, R.A., Newman, R., and McNair, J.N. 2021–2023. Building a centralized database of watermilfoil strain geographic distribution and herbicide response for use in management decision-making.

Funded by the GLRI and the U.S. Fish and Wildlife Service. Role: Co-PI. McNair subaward: \$27,708 over 2 years.

Completed Funded Projects

- McNair, J.N. 2022–2023. Validity assessment of Michigan’s proposed qPCR threshold value for rapid water-quality monitoring of *E. coli* contamination. Funded by supplemental funds from Michigan EGLE’s Real-Time Beach Monitoring program: \$10,000.
- Partridge, C., McNair, J.N., and Strychar, K. 2016. Adaptive management of invasive baby's breath (*Gypsophila paniculata*) in coastal dune habitats of northwest Michigan: Removal, assessment, and control. Funded by US EPA Region 5 (GLRI). Role: Co-PI. Amount: \$405,275 over 3 years.
- McNair, J.N. and Strychar, K. 2015. REU Site: Research Experience for Undergraduates in QUantitative Environmental Science and Technology (REU-QUEST). Funded by the National Science Foundation (Research Experiences for Undergraduates). Role: PI. Amount: \$264,287 over 3 years (2015–2017).
- Monfils, A., Thum, R.A., Chadderton, W.L., Tucker, A., and McNair, J.N. 2015. Integrated and novel approaches towards treating Eurasian water milfoil and other aquatic invasive plant species in Michigan lakes and waterways. Funded by the Michigan Department of Natural Resources (Michigan Invasive Species Grant Program). Role: Co-PI. Amount: \$391,700 over 2 years (extended to 3 years).
- McNair, J.N., Thompson, K., and Steinman, A.D. 2015. Using high-resolution terrestrial lidar to measure bank erosion. Funded by Project Clarity (Lake Macatawa, Michigan). Role: PI. Amount: \$29,000 over 2 years.
- McNair, J.N., Thompson, K., and Steinman, A.D. 2014. An overview of stream sediment source attribution based on $^{7}\text{Be}/^{210}\text{Pb}_{\text{ex}}$ ratios. Funded by Project Clarity (Lake Macatawa, Michigan). Role: PI. (\$20,000)
- Biddanda, B.B., Rediske, R., McNair, J.N., and Vail, J. 2010–2014. Observatory for Ecosystem Changes in Muskegon Lake. Funded by US EPA Region 5 - Great Lakes Restoration Initiative. Role: Co-PI. Amount: \$568,449.
- Thum, R.A., and McNair, J.N. 2013–2014. Comparative Study of Seed Germination Rate in Hybrid versus Eurasian and Northern Watermilfoil. Funded by We Energies Wilderness Shores Mitigation and Enhancement Fund. Role: Co-PI. Amount: \$53,231.
- Newbold, J.D., Aufdenkampe, A.K., Kaplan, L.A., Packman, A. and McNair, J.N. 2006–2011. Collaborative Research: Seston Contributions to metabolism Across Longitudinal Ecosystems (SCALE) — Dynamics of Organic Particles in River Networks. Funded by the National Science Foundation. (My component of this grant was transferred from the Academy of Natural Sciences of Philadelphia to AWRI/GVSU in 2009.) Role: Co-PI. Amount: \$600,000.
- Steinman, A., McNair, J.N., Ogdahl, M., and Thompson, K. 2009. The effect of restoration on phosphorus dynamics in the Kissimmee River. Funded by the South Florida Water Management District. Role: Co-PI. Amount: \$39,304.
- McNair, J.N. and Hart, D.D. 2005–2008. Development and use of an improved tool to maximize the environmental benefits of stream restoration and protection activities. Funded by U.S. EPA Region III. Role: PI and Project Leader. Amount: \$150,000.
- McNair, J.N., Srivastava, P., and Hart, D.D. 2005–2007. Development of a watershed management tool to predict and maximize the benefits of riparian restoration projects. Funded by Pennsylvania Department of Environmental Protection. Role: PI and Project Leader. Amount: \$100,000.

McNair, J.N. and Witmer, R. 2005. Restoration of riparian buffer habitat along Cobbs Creek and Tacony Creek by removal of invasive Japanese knotweed. Funded by National Fisheries and Wildlife Foundation. Role: PI and Project Leader. Amount: \$15,000.

Hart, D.D., Srivastava, P., and McNair, J.N. 2003–2005. A compilation and evaluation of stream restoration projects. Funded by Pennsylvania Department of Environmental Protection and William Penn Foundation. Role: PI. Amount: \$308,000.

McNair, J.N. and Hart, D.D. 1999–2005. Enhancing the effectiveness of vegetation restoration and maintenance activities in Philadelphia’s Fairmount Park system. Funded by the William Penn Foundation. Role: PI and Project Leader. Amount: \$1,210,000.

Current Teaching

Techniques for Modeling Biological Systems — A dual-level course that includes a review of elementary mathematics (basic algebra, common functions, etc.), matrix algebra from the basics through spectral theory, linear and nonlinear difference equations, basic calculus, basic linear and nonlinear ordinary differential equations, and local stability theory of nonlinear difference and differential equations, plus basic computational and computer-graphics methods for all these topics, and applications in disciplines such as theoretical ecology, natural resources management, population genetics, ecotoxicology, epidemiology, physiology, cell biology, and statistics.

Advanced Population Ecology — A dual-level course that surveys the main phenomena of population ecology and the main theories that have been proposed to explain them. Emphasis is placed on classic field and laboratory studies that stimulated development of modern theories of population dynamics, and on key population models that were developed to explain results of these studies.

Postdoctoral Fellows Trained

Adriana Araújo – PhD, Nagasaki University, Japan

Margot Bram – PhD, Rutgers University

Rob Witmer – PhD, Virginia Tech

Master’s Students Mentored

Emma Rice – Master’s student at Grand Valley State University

Jay Zuidema – Master’s student at Grand Valley State University

Meagan Sesselmann/McPherson – Master’s student at Grand Valley State University

Syndell Parks – Master’s student at Grand Valley State University

Lindsey Schulte – Master’s student at Grand Valley State University

Service on Graduate Student Committees in the Last 10 Years

John Hart – Master’s committee, Grand Valley State University

Emily Neuman – Master’s committee, Grand Valley State University

Meg Sanders – Master’s committee, Grand Valley State University

Cassidy Gilmore – Master’s committee, Grand Valley State University

Molly Lane – Master’s committee, Grand Valley State University

Alan Mock – Master’s committee, Grand Valley State University

Matt Allen – Master’s committee, Grand Valley State University
Dan Myers – Master’s committee, Grand Valley State University
Hailee Pavisich – Master’s committee, Grand Valley State University
Nicole Horne – Master’s committee, Grand Valley State University
Nick Gezon – Master’s committee, Grand Valley State University
Susanna LaGory – Master’s committee, Grand Valley State University
Tony Weinke – Master’s committee, Grand Valley State University
Leon Gereaux – Master’s committee, Grand Valley State University
Susan Munster – Master’s committee, Grand Valley State University
Mike Angeletta – Doctoral committee, University of Pennsylvania
Steve Beaupre – Doctoral committee, University of Pennsylvania
Dina Fonseca – Doctoral committee, University of Pennsylvania
Stan Kemp – Doctoral committee, University of Pennsylvania
Helen Murphy – Doctoral committee, University of Pennsylvania
Mike Sears – Doctoral committee, University of Pennsylvania
Roland Wall – Master’s committee, University of Delaware

Other Students Mentored at Grand Valley State University

Isabelle Ciarrocchi – Biostatistics graduate student intern, Winter 2024
Monica Van Til – Biostatistics undergraduate student intern, Summer 2019
Brady Nahkala – NSF REU student, Summer 2017
Krystle Saylon – NSF REU student, Summer 2016
Eli Jacobson – NSF REU student, Summer 2016
Pamela Martínez-Oquendo – NSF REU student, Summer 2016
Shelby Brewer – NSF REU student, Summer 2015
Ariana Carlson – Biostatistics graduate student intern, Fall 2014
Jonathon Minard – Computing and Information Systems undergrad intern, Winter 2014
Kathy Roberts – Biostatistics graduate student intern, Fall 2013
Janae Wilson – Biostatistics graduate student intern, Fall 2012
Alex Ebenstein – Geography and Natural Resources Management undergraduate intern, Summer 2012
Zachary Madaj – Mathematics and Statistics undergraduate intern, Summer 2011
Meagan Sesselmann – Purdue Chemical Engineering undergraduate intern, Summer 2010
Anusha Sunkara – Biostatistics graduate student; Summer 2009, 2010
Allison Flood – Mathematics and Biology undergraduate intern; Summer 2009

Carson Pritchard – Natural Resources Management undergraduate intern, Spring and Summer 2009