

Thomas M. Neeson

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EDUCATION

- 2010 Ph.D. Natural Resources and Environment, University of Michigan
 2009 M.A. Statistics, University of Michigan
 2005 M.S. Biology, Case Western Reserve University
 2003 B.S. Geological Sciences, minor Computer Science, Case Western Reserve University

PROFESSIONAL EXPERIENCE

- 2015 – Pres. Assistant Professor, Department of Geography and Environmental Sustainability, University of Oklahoma
 2012 – 2015 Postdoctoral researcher, Center for Limnology, University of Wisconsin
 2010 – 2012 Postdoctoral researcher, Hebrew University of Jerusalem, Israel

PUBLICATIONS (Students and postdocs I have advised are underlined)

Papers in review or revision

31. Zamani Sabzi, H., H. Moreno, R. Fovargue, X. Xue, Y. Hong, and **T.M. Neeson**. Joint consideration of future water availability and societal demand reveals hotspots of water stress in the Red River. *In review, Science of the Total Environment*.
30. Fitzpatrick, K.B., A.T. Moody, A. Milt, M.W. Diebel, M. Herbert, M. Khoury, E. Yacobson, P.J. Doran, M.C. Ferris, P.B. McIntyre, and **T.M. Neeson**. Can indicator and umbrella species guide conservation investments in Great Lakes tributaries? *In revision, Biological Conservation*
29. Guo, L., H. Zamani Sabzi, **T.M. Neeson**, J. Allen and F. Mistree. Managing conflicting water resource goals and uncertainties in a dam network by exploring the solution space. *In revision, Journal of Mechanical Design*
28. Zamani Sabzi, H., S. Rezapour, R. Fovargue, H.A. Moreno, and **T.M. Neeson**. Strategic allocation of water conservation incentives to boost environmental flows and societal outcomes. *In review, Ecological Engineering*

27. McKay, S.K., E.H. Martin, P.B. McIntyre, A.W. Milt, A.T. Moody, and **T.M. Neeson**. From tragedy to strategy: A comparison of approaches for prioritizing removal and repair of instream connectivity barriers. *Revised and resubmitted, Conservation Letters*
26. Mills, K.L. and **T.M. Neeson**. Informal and illicit infrastructure is an underappreciated cause of freshwater ecosystem fragmentation. *In review, Biodiversity and Conservation*

Published

25. Sleight, N. and **T.M. Neeson**. (2018) Opportunities for collaboration between infrastructure agencies and conservation groups: road-stream crossings in Oklahoma. *Transportation Research D: Transport and Environment* 63:622-631.
24. Popejoy, T., C.R. Randklev, **T.M. Neeson**, and C.C. Vaughn (2018) Prioritizing mussel beds for conservation based on similarity to historical baselines and feasibility of protection. *Conservation Biology* (in press)
23. Milt, A., M. Diebel, P.J. Doran, M.C. Ferris, M. Herbert, M. Khoury, A.T. Moody, **T.M. Neeson**, J. Ross, T. Treska, J.R. O’Hanley, L. Walter, S. Wanger, E. Yacobson, P.B. McIntyre (2018) Minimizing opportunity costs to aquatic connectivity restoration while controlling invasive species. *Conservation Biology* 32:894-904.
22. **Neeson, T.M.**, A.T. Moody, J.R. O’Hanley, M. Diebel, P.J. Doran, M.C. Ferris, T. Colling, and P.B. McIntyre (2018) Aging infrastructure creates opportunities for cost-efficient restoration of aquatic ecosystem connectivity. *Ecological Applications* 28:1494-1502.
21. **Neeson, T.M.**, P.J. Doran, M.C. Ferris, K.B. Fitzpatrick, M. Herbert, M. Khoury, A.T. Moody, J. Ross, E. Yacobson, and P.B. McIntyre (2018) Conserving rare species can have high opportunity costs for common species. *Global Change Biology* 24:3862-3872.
20. Fitzpatrick, K.B. and **T.M. Neeson** (2018) Aligning dam removals and road culvert upgrades boosts conservation return-on-investment. *Ecological Modelling* 368:198-204.
19. Trachtenberg, Z.M., T. Burns, K. de Beurs, S.E. Ellis, B.W. Hoagland, K.K. Gates, J.F. Kelly, **T.M. Neeson**, A.R. Randall, I. Schlupp, P.S. Soppelsa, G.S. Soreghan, J.J. Ziegler (2017) The Anthropocene biosphere: supporting interdisciplinary inquiry by blogging. *Trends in Ecology and Evolution* 32:1-3.
18. Milt, A.W., P.J. Doran, M.C. Ferris, A.T. Moody, **T.M. Neeson**, P.B. McIntyre (2017) Local-scale benefits of restoration planning beyond jurisdictional boundaries. *River Research and Applications* 33:788-795.
17. Moody, A.T., **T.M. Neeson**, S. Wangen, J. Dischler, M.W. Diebel, M. Herbert, M. Khoury, E. Yacobson, P.J. Doran, M.C. Ferris, J.R. O’Hanley, P.B. McIntyre (2017) Pet project or best project? Online decision support tools for prioritizing barrier removals in the Great Lakes and beyond. *Fisheries* 42:57-65.
16. **Neeson, T.M.**, S.D.P. Smith, J.D. Allan, P.B. McIntyre (2016) Prioritizing ecological restoration among sites in multi-stressor landscapes. *Ecological Applications* 26:1785-1796.

15. Radeloff, V. C., J. W. Williams, B. L. Bateman, K. D. Burke, S. K. Carter, E. S. Childress, K. J. Cromwell, C. Gratton, A. O. Hasley, B. M. Kraemer, A. W. Latzka, E. Marin-Spiotta, C. D. Meine, S. E. Munoz, **T. M. Neeson**, A. M. Pidgeon, A. R. Rissman, R. J. Rivera, L. M. Szymanski, J. Usinowicz. (2015) The rise of novelty in ecosystems. *Ecological Applications* 25:2051-2068.
14. **Neeson, T.M.**, M.F. Ferris, M.W. Diebel, P.J. Doran, J.R. O’Hanley, P.B. McIntyre (2015) Enhancing ecosystem restoration efficiency through spatial and temporal coordination. *Proceedings of the National Academy of Sciences – USA* 112:6236-6241.
13. McIntyre, P.B., E. Childress, E. Hamann, J. Hogan, S.R. Januchowski-Hartley, A.A. Koning, C.R. Liermann, **T.M. Neeson**, D. Oele, and B.M. Pracheil. (2015). Conservation of migratory fishes in freshwater ecosystems. in Closs, G.P., Krkosek, M. and Olden, J.D. (Ed.) *Conservation of Freshwater Fishes* (pp. 324-361). Cambridge University Press, Cambridge, UK.
12. van Rijn, I., **T.M. Neeson**, and Y. Mandelik (2015) Reliability and refinement of the higher taxon approach for bee richness and composition. *Ecological Applications* 25:88-98.
11. **Neeson, T.M.** and Y. Mandelik (2014) Pairwise measures of species co-occurrence for choosing indicator species and quantifying overlap. *Ecological Indicators* 45:721-727.
10. **Neeson, T.M.**, I. van Rijn, and Y. Mandelik (2013) How taxonomic diversity, community structure, and sample size determine the reliability of higher taxon surrogates. *Ecological Applications* 23:1216-1225.
9. **Neeson, T.M.**, M. Salomon, and M. Coll (2013) Nutrient-specific foraging leads to Allee effects and dynamic functional responses. *Oikos* 122:265-273.
8. Mandelik, Y., R. Winfree, **T.M. Neeson**, and C. Kremen (2012) Complementary habitat use by wild bees in agro-natural landscapes. *Ecological Applications* 22:1535-1546.
7. **Neeson, T.M.**, M.J. Wiley, S.A. Adlerstein, and R.L. Riolo (2012) How river network structure and habitat availability shape the spatial dynamics of larval sea lampreys. *Ecological Modelling* 226:62-70.
6. **Neeson, T.M.**, S.A. Adlerstein, and M.J. Wiley (2012) Towards a process domain sensitive substrate habitat model for sea lampreys in Michigan rivers. *Transactions of the American Fisheries Society* 141:313-326.
5. Gorman, A.M., P.J. Whiting, **T.M. Neeson**, and J.F. Koonce (2011) Channel substrate prediction from GIS for habitat estimation in Lake Erie tributaries. *Journal of Great Lakes Research* 37:725-731.
4. **Neeson, T.M.**, M.J. Wiley, S.A. Adlerstein, and R.L. Riolo (2011) River network structure shapes interannual feedbacks between adult sea lamprey migration and larval habitation. *Ecological Modelling* 222:3182-3193.
3. **Neeson, T.M.**, A.M. Gorman, P.J. Whiting, and J.F. Koonce (2008) Factors affecting accuracy of stream channel slope estimates derived from geographic information systems. *North American Journal of Fisheries Management* 28:722-732.

2. **Neeson, T.M.**, J.F. Koonce, and P.J. Whiting (2007) Predicting sea lamprey (*Petromyzon marinus*) habitat using geographic information systems. *Journal of Great Lakes Research* 33:546-553.
1. Matisoff, G. and **T.M. Neeson** (2005) Oxygen concentration and demand in Lake Erie sediments. *Journal of Great Lakes Research* 31 (Suppl. 2):284-295.

Book reviews

Neeson, T.M. (2016). Lampreys: Biology, Conservation and Control (Volume 1). *The Quarterly Review of Biology*.

RESEARCH FUNDING (Total: \$4,211,699; as PI: \$539,037)

- 2019 – 2024 MSB-FRA: Scaling climate, connectivity, and communities in streams. National Science Foundation (PI: D. Allen, co-PIs M. Bogan, K. Costigan, Y. Hong, M. Mims, **T.M. Neeson**, R. Pastel, B. Ruddell, A. Ruhi, and A. Springer). \$3,039,000.
- 2018 – 2019 Balancing water usage and ecosystem outcomes under drought and climate change: enhancing an optimization model for the Red River. South Central Climate Science Center (PI: **T.M. Neeson**, co-PI: H. Moreno). \$212,723.
- 2017 – 2018 LiDAR mapping of farm pond locations and storage volumes to support drought and flood management in Oklahoma. National Integrated Drought Information System (PI: **T.M. Neeson**, co-PIs B. Owsley and K. de Beurs). \$49,022.
- 2017 – 2018 Identifying outlier and gap movements in marine vessel satellite tracking data. University of Oklahoma Libraries DATA grant (PI: R. Loraamm, co-PIs **T.M. Neeson** and K. de Beurs). \$5,000.
- 2017 – 2018 Enhancing conservation return-on-investment of dam removals through cooperation with infrastructure owners. Upper Midwest & Great Lakes Landscape Conservation Cooperative (PI: P.B. McIntyre, co-PIs M.C. Ferris and **T.M. Neeson**). \$98,765.
- 2017 – 2019 Assessing the impacts of road culverts on stream fishes in eastern Oklahoma. Oklahoma Dept. of Wildlife Conservation (PI: **T.M. Neeson**). \$66,934.
- 2016 – 2018 A return-on-investment approach to restoring natural flow regimes in the Red River. Great Plains Landscape Conservation Cooperative (PI: **T.M. Neeson**, co-PI: H. Moreno). \$195,393.
- 2016 – 2017 Restoring ecosystem connectivity in the Canadian River. University of Oklahoma, Office of the Vice President for Research (PI: **T.M. Neeson**). \$14,965.

- 2016 – 2017 Integrating lampricide options into a decision support tool for barrier management in Great Lakes Tributaries. Upper Midwest & Great Lakes Landscape Conservation Cooperative (PI: P. McIntyre, co-PIs: J. Dischler, M.C. Ferris, A. Milt, A.T. Moody, **T.M. Neeson**, J.R. O’Hanley, and S. Wangen). \$170,391.
- 2016 – 2017 Informing Great Lakes connectivity decisions: Enhancing an online tool to include high-resolution data and species-specific analyses. Great Lakes Fisheries Trust (PI: P. McIntyre, co-PIs: M. Diebel, P.J. Doran, M. Fedora, M.C. Ferris, M. Herbert, M. Khoury, **T.M. Neeson**, and J.W. Wagenbrenner). \$359,506.

GRADUATE STUDENTS and POSTDOCS SUPERVISED

Sean Wineland	2018 – Pres.	Ph.D. Geography
Anna Thomas	2018 – Pres.	M.S. Geography
Rachel Fovargue	2018 – Pres.	Postdoctoral researcher
Hamed Zamani-Sabzi	2017 – Pres.	Postdoctoral researcher
Parker Fleming	2017 – Pres.	M.S. Geography
Kenneth Gill	2017 – Pres.	M.S. Geography
Braden Owsley	2017 – Pres.	M.S. Geography
Kimberly Fitzpatrick	2015 – 2017	M.S. Geography
Nathan Sleight	2015 – 2017	M.S. Geography

GRADUATE STUDENT COMMITTEES

Ryan Williams	M.S. Geography	(in progress)
Haley Smith	M.S. Geography	(in progress)
Reza Alizadeh	Ph.D. Industrial & Systems Engineering	(in progress)
Rafael Pires de Lima	Ph.D. Geophysics	(in progress)
Golya Shahrokhi	Ph.D. Biology	(in progress)
Steve Bittner	Ph.D. Biology	(in progress)
Michelle Busch	Ph.D. Biology	(in progress)
Zhen Hong	Ph.D. Geography	(in progress)
Lin Guo	Ph.D. Industrial & Systems Engineering	(in progress)
B. Holzbauer-Schweitzer	Ph.D. Environmental Engineering	(in progress)
Chloe Magee	M.S. Geography	(in progress)
Darin Kopp	Ph.D. Biology	(in progress)
Traci Popejoy	Ph.D. Biology	(in progress)
Rebecca Prather	Ph.D. Biology	(in progress)

Joshua Hatzis	Ph.D. Geography	(in progress)
Austin Griffin	M.S. Geography	Summer 2018
Monica Mustain	M.S. Geography	Spring 2018
Claude Buerger	M.S. Geography	Summer 2017
Emily Thompson	M.S. Geography	Spring 2017
Laura Holtzman	M.A. Geography	Spring 2017
Chih-Yu Lai	Ph.D. Geography	Withdrew

TALKS AND SEMINARS (first-authored only)

Invited

- 2017 Barriers to fish movements in Oklahoma streams. Oklahoma Department of Wildlife Conservation, Arcadia, OK.
- 2017 Statistical approaches for spatial data. School of Industrial and Systems Engineering, University of Oklahoma, Norman, OK.
- 2017 Tradeoffs between infrastructure, water and ecosystems in the Great Lakes and Great Plains. Dept. of Aerospace and Mechanical Engineering, University of Oklahoma, Norman, OK.
- 2017 A return-on-investment approach to restoring natural flow regimes in the Red River. Great Plains LCC Steering Committee, Wichita, KS.
- 2016 Decaying infrastructure creates conservation opportunities: the case for fish-friendly road crossings. Joint LCC / DOT workshop on conservation and infrastructure, Philadelphia, PA.
- 2015 Decision support tools to evaluate barrier removals in Great Lakes tributaries. Great Lakes Fishery Commission annual meeting, Grand Rapids, MI.
- 2014 Accounting for sea lampreys in a Great Lakes barrier removal decision support tool. Great Lakes Fishery Commission, Sea Lamprey Control Board, Ann Arbor, MI.
- 2014 An optimization-based web decision support tool for evaluating barrier removals in Great Lakes tributaries. Great Lakes Fishery Trust connectivity workshop, Lansing, MI.
- 2014 Prioritizing barrier removals in Great Lakes tributaries. Great Lakes Fishery Commission, Lake Michigan Technical Committee, Manistee, MI.
- 2014 Prioritizing barrier removals to restore native fish migrations in Great Lakes tributaries. USFWS Great Lakes Fish Team meeting, Green Bay, WI.
- 2013 Optimization approaches to restoring aquatic ecosystem connectivity in Great Lakes tributaries. USGS WI Water Center, Middleton, WI.
- 2013 Conserving freshwater fishes in a fragmented world. United Nations Association of Dane County, Madison, WI.

- 2013 Prioritizing barrier removals to restore native fish migrations in Great Lakes tributaries. Great Lakes Fishery Trust, Traverse City, MI.
- 2012 Optimization approaches to prioritizing fish passage projects in the Great Lakes. Environmental Consulting and Technology, Ann Arbor, MI. (*webinar*)
- 2012 Reconnecting the Great Lakes and their tributaries. Chicago Wilderness Congress, Chicago, IL.
- 2012 Sea lamprey habitat and population models in Great Lakes tributaries. University of Notre Dame, South Bend, IN.
- 2012 Spatial dynamics of migratory sea lampreys in Great Lakes tributaries. Ben Gurion University, Sde Boker, Israel.
- 2009 Interannual feedbacks and the spatial dynamics of migratory lampreys in river networks. Complex Systems Advanced Academic Workshop, Ann Arbor, MI.
- 2008 Spatial dynamics of migratory sea lampreys following a larval pheromone. Great Lakes Fishery Commission, Escanaba, MI.

Contributed

- 2018 Conserving rare species can have high opportunity costs for common species. Society for Freshwater Science, Detroit, MI.
- 2016 Enhancing ecosystem restoration efficiency through spatial and temporal coordination. Ecological Society of America, Fort Lauderdale, FL.
- 2015 Prioritizing barrier removals in Great Lakes tributaries: restoring native fish migrations while controlling invasive species. Society for Freshwater Science, Milwaukee, WI.
- 2015 Prioritizing barrier removals in Great Lakes tributaries: restoring native fish migrations while controlling invasive species. Annual Conference on Great Lakes Research (IAGLR), Burlington, VT.
- 2014 Leveraging PASER road surface condition data to support barrier removal decisions for native fishes in Great Lakes tributaries. Michigan Department of Transportation, Transportation Asset Management Council Meeting, Lansing, MI.
- 2014 Prioritizing barrier removals to restore native fish migrations in Great Lakes tributaries. American Fisheries Society, Quebec City, Quebec.
- 2014 Prioritizing barrier removals to restore native fish migrations in Great Lakes tributaries. Annual Conference on Great Lakes Research (IAGLR), Hamilton, Ontario.
- 2014 Accounting for sea lampreys in a Great Lakes barrier removal decision support tool. International Conference on Engineering and Ecohydrology for Fish Passage (Fish Passage 2014), Madison, WI.
- 2013 Prioritizing barrier removals in Great Lakes tributaries: restoring native fish migrations while controlling invasive species. Center for Limnology, University of Wisconsin, Madison, WI.

- 2013 Prioritizing in-stream barrier removal in Great Lakes tributaries. Ecological Society of America, Minneapolis, MN.
- 2013 Finding conservation opportunities in multi-stressor maps using stressor heterogeneity. Ecological Society of America, Minneapolis, MN.
- 2013 Prioritizing barrier removal in Great Lakes tributaries. National Conference on Ecosystem Restoration, Chicago, IL.
- 2013 Optimization approaches to prioritizing barrier removals in Great Lakes tributaries. Annual Conference on Great Lakes Research (IAGLR), W. Lafayette, IN.
- 2013 Prioritizing barrier removals to restore ecosystem connectivity in Great Lakes tributaries. Society for Freshwater Science, Jacksonville, FL.
- 2012 Reconnecting the Great Lakes and their tributaries. Midwest Fish and Wildlife annual conference, Wichita, KS.
- 2012 Spatial dynamics of sea lampreys in Great Lakes tributaries. Center for Limnology, University of Wisconsin, Madison, WI.
- 2011 Nutrient-specific omnivorous foraging leads to Allee effects and dynamic functional responses. Zoological Society of Israel, Tel Aviv, Israel.
- 2010 Pheromone-driven spatial dynamics of migratory lampreys. Hebrew University of Jerusalem, Rehovot, Israel.
- 2008 River network structure influences sea lamprey distribution in a simple model. Annual Conference on Great Lakes Research (IAGLR), Peterborough, Ontario.
- 2006 Using HEC-RAS to predict local-scale distributions of sea lamprey ammocoetes. American Fisheries Society, Lake Placid, NY.
- 2005 Determining the accuracy of GIS-derived stream channel slopes, a critical component of a GIS-based sea lamprey habitat model. Annual Conference on Great Lakes Research (IAGLR), Ann Arbor, MI.

TEACHING

University of Oklahoma

Capstone (seniors), Spring semesters 2018 – pres.

Research Methods and Professional Development (seniors), Fall semesters 2017 – pres.

Advanced GIS and Spatial Analysis (undergrad / grad level), Spring 2016 – pres.

Spatial Statistics (undergrad / grad level), Fall 2015 – pres.

Introduction to Spatial Thinking and Computer Mapping (undergraduate), 2016-2017.

SELECTED AWARDS & FELLOWSHIPS

- 2018 Dean's Award, Excellence in Research and Scholarship (One per year)
- 2011 Finalist, University Distinguished Dissertation Award (UM; 2% of PhD grads)
- 2009 Superior Teaching Award (SNRE, UM)
- 2005 – 2009 Paul Welch Fellowship in Limnology (UM; tuition and stipend)
- 2003 Carol Wien Walker Award, Outstanding Senior Project (Geol. Sci., CWRU)
- 1999 – 2003 Provost Scholarship (CWRU)

SERVICE & SYNERGISTIC ACTIVITIES

- 2018 – Pres Co-leader, South Central Climate Adaptation Science Center working group on Sustainable Water Resources
- 2017 – Pres Steering committee member, Gulf Coastal Plains and Ozarks LCC Aquatic Connectivity Assessment Project
- 2016 Invited participant, Big 12 Water Conference, Baylor University, Waco, TX
- 2014 Invited participant, Great Lakes Fishery Trust aquatic connectivity workshop, Lansing, MI
- 2014 Invited participant, stakeholder workshop on water quality in Lake Michigan nearshore/coastal zone, University of Wisconsin-Milwaukee, Milwaukee, WI
- 2014 Invited participant, Upper Midwest and Great Lakes LCC fish habitat and climate change vulnerability meeting, USGS, Middleton, WI
- 2013 Co-organizer, UW-led interagency workshop on aquatic connectivity decision making in Great Lakes tributaries, Milwaukee, WI
- 2013 Co-organizer, “Nearshore/Coastal Conditions and Watershed Connections,” Annual Conference on Great Lakes Research (IAGLR), West Lafayette, IN
- 2012 Invited participant, The Nature Conservancy Great Lakes aquatic connectivity working group, De Pere, WI
- 2012 – 2015 Participant, University of Wisconsin NSF IGERT program on conservation in novel and no-analog ecosystems
- 2011 Participant, “Likelihood Methods for Ecology” week-long course, Hebrew University of Jerusalem, Israel
- 2007 Participant, “Enhancing Linkages Between Ecology and Mathematics,” week-long course, Kellogg Biological Station, Hickory Corners, MI

Departmental and University Service

- 2018 – Pres. Dean’s review committee
- 2018 – Pres. CAPC
- 2017 – Pres. University Research Liaison, Dept. of Geography and Env. Sustainability
- 2016 – Pres. Faculty advisor, OU Student Environmental Council
- 2016 Faculty search committee, Coupled Natural and Human Systems, DGES
- 2015 – 2017 Undergraduate Committee
- 2015 Faculty search committee, Geohumanities position, DGES
- 2015 M.S. Geography committee, DGES

Peer review

Over the last three years, I have averaged nine journal reviews per year. I have reviewed journal articles for: *Animal Behaviour*, *Aquatic Biology*, *Aquatic Sciences*, *Austral Entomology*, *Basic and Applied Ecology*, *Biodiversity and Conservation*, *Biological Conservation*, *Canadian Journal of Fisheries and Aquatic Sciences*, *Continental Shelf Research*, *Ecological Applications*, *Ecological Engineering*, *Environmental Science and Technology*, *Hydrobiologia*, *Journal of the American Water Resources Association*, *Journal of Applied Ecology*, *Journal of Biogeography*, *Journal of Great Lakes Research*, *Landscape Ecology*, *Marine and Freshwater Research*, *Methods in Ecology and Evolution*, *Natural Resource Modeling*, *Oikos*, *Proceedings of the National Academy of Sciences*, *The Quarterly Review of Biology*, *Science of the Total Environment*, *Transactions of the American Fisheries Society*