

Jon Harbor

Provost, Purdue University Global

Emeritus Professor, Department of Earth, Atmospheric, and Planetary Sciences, Purdue University

PROFESSIONAL POSITIONS

Purdue University Global, Provost, 2020-present

University of Montana

Executive Vice President and Provost, 2018-2020

Professor, joint appointment in the Department of Geography and the Geosciences Department, 2018-present

Purdue University:

Executive Director of Digital Education and Associate Vice Provost for Teaching and Learning, 2015-18

Founding and Interim Director, Purdue Global Sustainability Institute, 2009-13

Head, Dept. Earth, Atmospheric, and Planetary Sciences, 2010-13, 2005-06; Associate Head, 2001-03

Interim Dean, College of Science, 2008-09

Associate Vice President for Research for Centers and Institutes, 2007-08

Founding Co-Director, Discovery Learning Research Center, 2003-05, and Interim Director, 2007-08

Associate Dean for Research & Interim Associate Dean for Graduate Education, College of Science, 2003-04

Emeritus Professor (2018-present); Professor (2007-2018 and 2001-06) and Associate Professor (1994-2001) of Environmental Geosciences

American Council on Education Fellow, 2014-15. Host Institution, North Carolina State University.

Marie Curie International Incoming Fellow, Stockholm University, Department of Physical Geography, 2013-14

Dean, College of Liberal Arts and Sciences, and Geography Professor, University of Colorado Denver, 2006-07

Fulbright Senior Scholar, Department of Geography, University of Canterbury, New Zealand, 2000-01

Assistant Professor, Department of Geology, Kent State University, 1990-94

Senior Associate Scientist, Ebasco Environmental, Bellevue, Washington, 1989-90

Honorary/Adjunct:

Honorary Professor, School of Geographical Sciences, University of Nottingham Ningbo Campus, China, and School of Geography, University of Nottingham UK Campus, 2017-present

Honorary Professor, Graduate School, Qinghai Normal University, China, and Chief Scientist of China-US Joint Laboratory for Natural Resources and Environmental modeling, 2017-present

Affiliated Professor, Department of Physical Geography, Stockholm University, 2014-present

Adjunct Professor, Department of Geography, University of Tennessee, 2012-present

Journal and Professional Society:

Editor for Earth Surface Processes, *Earth Science Reviews* (2002-11); Associate Editor, *Anthropocene* (2012-15);

Editorial Board member: *Geomorphology* (1999-2007); *Journal of Mountain Science* (2006-15); *Physical Geography* (2008-15); *The Geographical Journal (U.K.)* (2010-15); *Anthropocene* (2015-2019).

Member: *Healthy Departments Committee, Association of American Geographers*, 2015-present

Executive Committee: *American Geophysical Union Heads and Chairs Board*, 2010-12

Chair: *Geomorphology Specialty Group, Association of American Geographers*, 2007-08; *Fellows Selection Committee, Association of American Geographers*, 2019-present

EDUCATION

Ph.D. 1990, University of Washington (Seattle). Department of Geological Sciences.

M.A. 1984, University of Colorado (Boulder). Department of Geography.

B.A. 1982, University of Cambridge (U.K.). Department of Geography and Girton College.

AWARDS AND HONORS

External:

Fellow, American Association of Geographers, 2019
Fellow, American Council on Education, 2014
Fellow, American Association for the Advancement of Science, 2010
Fellow, Royal Geographical Society (U.K.), 2010
Honorary Doctorate, Stockholm University, Sweden, 2015
Scientific Excellence Prize, Department of Science and Technology, Gansu Province, China, 2017, for the book *Glaciers and Glacial Landscapes in China*, by Liu, Zhao, Pu, Deng, Su, and Harbor.
Marie Curie International Incoming Fellow, European Commission, Stockholm University, 2013-14
Distinguished Overseas Visitor, 2003-4, Department of Geography, University of Durham, U.K.
Fulbright Senior Scholar, 2000-2001, New Zealand
Conservation Educator of the Year, Summit Soil and Water Conservation District, Ohio, 1992

Purdue University:

Provost's Award for Outstanding Graduate Faculty Mentor, 2013 (top university award for graduate education)
Faculty Fellow of the Year Award, Windsor Residence Halls, Purdue University, 2013
Inducted in to Purdue University's "Book of Great Teachers", 2008
Outstanding Graduate Student Advisor, Department of Earth and Atmospheric Sciences, 2005
Murphy Teaching Award, 2000 (top university award for undergraduate education)
Fellow of the Purdue Teaching Academy, 2000 - 2018
Outstanding Teacher Award, Department of Earth and Atmospheric Sciences, Purdue University, 1998

Student awards: George Goodspeed Scholarship, 1986, Faculty Fellowship, 1987, and Shell Companies Fellowship, 1988, Department of Geological Sciences, University of Washington. Hoover-Mackin Research Award (MS Level), Geological Society of America, 1983. Therese Montefiore Prize, 1982, Mary Sparke Exhibitioner, 1980-1982, and Margaret Anderson Prize, 1980, 1982, Girton College, Cambridge University.

PROFESSIONAL AFFILIATIONS

American Association of Geographers
American Association for the Advancement of Science
Royal Geographical Society, United Kingdom
Bolin Center for Climate Research, Stockholm University

RESEARCH AND TEACHING INTERESTS

Geomorphology: New insights into chronology, erosion patterns, and thermal regimes of former glaciers and ice sheets using modeling, field observations, and cosmogenic radionuclide approaches.

Environment: Modeling, assessment and management of impacts of land use and climate change on water resources and nonpoint source pollution.

Education Research: Assessing student outcomes in a program engaging graduate students and middle school teacher mentors in developing and teaching middle school lessons based on the graduate students' research; Assessing impacts of a workshop on the scholarship of teaching and learning; Exploring the impact of culturally-relevant geoscience education for diverse learners.

Teaching Interests: Include an introductory course in geography (fully online, asynchronous), study abroad to Sweden, and a graduate course in K-12 engagement (service learning), and courses in geomorphology, applied hydrology, and a capstone in environmental geoscience.

PUBLICATIONS

(superscripts designate authors and co-authors I advised, co-advised, or supervised at the time the published work was performed: a: undergraduate student. b: graduate student. c: post-doc. d: visiting scholar or staff)

Journal publications are organized by date within four major themes:
Administration - Teaching and Learning - Environmental Science - Glacial Research.

Journal Publications - administration

- ^dAskeroth, J., ^dNemelka, B., and Harbor, J., 2017, Changing Student Summer Behavior: Purdue Summer Stay Scholars. *Summer Academe*, 11, <http://dx.doi.org/10.5203/sa.v11i0.603>
- ^dNemelka, B., ^dAskeroth, J., and Harbor, J., 2017, Summer Start: Supporting Success for Conditionally-Admitted Students in a Summer Bridge Program. *Summer Academe*, 11, <http://dx.doi.org/10.5203/sa.v11i0.599>
- Harbor, J. and ^dNemelka, B., 2016, US Summer Session Strategies in Context: Past, Present, and Future. *Summer Academe*, 10, <http://dx.doi.org/10.5203/sa.v10i0.568>
- Ebert, K., Axelsson, L., and Harbor, J., 2015, Opportunities and challenges for building alumni networks in Sweden: A case study of Stockholm University. *Journal of Higher Education Policy and Management*, 37, 252-62. dx.doi.org/10.1080/1360080X.2015.1019117
- ^dStone, T., ^dBollard, K., and Harbor J. 2009, Launching Interdisciplinary Programs as College Signature Areas: An Example. *Innovative Higher Education*, 34(5) p.321-329. DOI 10.1007/s10755-009-9119-y

Journal Publications – teaching and learning

- Zakharov, W., Li, H., Fosmire, M., Pascuzzi, P., Harbor, J., *in review*, A mixed method study of self and peer assessment: Implications of grading online writing assignments on scientific news literacy. *College & Research Libraries*.
- Yang, M., Lowell, V., Talafha, A., Harbor, J., 2020. Transfer of Training, Trainee's Attitudes and Best Practices in Training Design: A Multiple-Case Study. *Tech Trends*, 10.1007/s11528-019-00456-5
- ^bReano, D., Masta, S., Harbor, J., 2019. Changing Future Faculty's Conceptions of SoTL. *International Journal for the Scholarship of Teaching and Learning*, 13. <https://doi.org/10.20429/ijstl.2019.130203>
- Bouchard, F., Sansoulet, J., Fritz, M., Malenfant-Lepage, J., Nieuwendam, A., Paquette, M., Rudy, A., Siewert, M., Sjöberg, Y., Tanski, G., Habeck, J., Harbor, J. 2019. "Frozen-Ground Cartoons": Permafrost comics as an innovative tool for polar outreach, education, and engagement. *Polar Record*. <https://doi.org/10.1017/S0032247418000633>
- ^bRoemmele, C., Harbor, J., ^aMoore, D., 2017, What graduate students from diverse disciplines learn about teaching from working with middle school teachers and students. *International Research in Higher Education*, 2(1) p.79-91. <https://doi.org/10.5430/irhe.v2n1p79>
- ^bWeeks, F., ^aGong, R., Harbor, J., 2015, A longitudinal study of the effectiveness of a K-12 engagement program on graduate student learning outcomes. *International Journal of Higher Education*, 4, 188–198. <http://dx.doi.org/10.5430/ijhe.v4n3p188>
- ^bWeeks, F. and Harbor, J., 2014, Assessing the impact of a K-12 engagement program on graduate learning outcomes for communicating with diverse audiences, pedagogy, and community engagement. *International Journal for the Scholarship of Teaching and Learning*, 8(2) #16. <http://digitalcommons.georgiasouthern.edu/ij-sotl/vol8/iss2/16>
- Ruggiero, D. and Harbor, J., 2013, Using writing assignments with calibrated peer review to increase engagement and improve learning in an undergraduate environmental science course. *International Journal for the Scholarship of Teaching and Learning*, 7(2) p.1-13. <http://digitalcommons.georgiasouthern.edu/ij-sotl/vol7/iss2/21>
- ^dDyehouse, M., Detwiler, J., Li, M., Bennett, D., Harbor, J., Childress, A., 2010, Practical Ways to Assess and Change Your Students' Perceptions of Scientists. *Science Scope*, 33(9), 45-51.

- ^dDyehouse, M., Bennett, D., Harbor, J., Childress, A. and Dark, M., 2009. A Comparison of Linear and Systems Thinking Approaches for Program Evaluation Illustrated Using the Indiana Interdisciplinary GK-12. *Evaluation and Program Planning*. 32, p.187-196.
- Riskowski, J., ^bDavis-Todd, C., ^bWee, B., Dark, M., and Harbor, J. 2009. Exploring the effectiveness of an interdisciplinary water resources engineering module in an eighth-grade science course. *International Journal of Engineering Education*. 25, p.181-95.
- Shepardson, D., ^bWee, B., Priddy, M., Schellenberger, L. and Harbor, J. 2008. Water transformation and storage in the mountains and at the coast: Midwest students' disconnected conceptions of the hydrologic cycle. *International Journal of Science Education*. DOI: 10.1080/09500690802061709
- Shepardson, D., ^bWee, B., Priddy, M., and Harbor, J. 2007. Students' Mental Models of the Environment. *Journal of Research in Science Teaching*. 44 (2), p.327-348. DOI: 10.1002/tea.20161
- Shepardson, D., ^bWee, B., Priddy, M., Schellenberger, L. and Harbor, J. 2007. What is a Watershed? Implications of Student Conceptions for Environmental Science Education and the National Science Education Standards. *Science Education*. DOI 10.1002/sce p.554-578.
- ^bWee, B., Shepardson, D. P., Fast, J., and Harbor, J., 2007. Teaching and learning about inquiry: Insights and challenges in professional development. *Journal of Science Teacher Education*, 18, p.63-89.
- ^bWee, B., Harbor, J., and Shepardson, D. 2006. Multiculturalism in environmental science: A snapshot from Singapore. *Multicultural Perspectives* 8(2), p.10-17.
- ^aPatterson, L. and Harbor, J. 2005. Using assessment to evaluate and improve inquiry-based geoenvironmental science activities: Case study of a middle school watershed *E. coli* investigation. *Journal of Geoscience Education*, 53(2) p. 204-214.
- Shepardson, D., Harbor, J. and ^bWee, B. 2005. Water Towers, Pump Houses and Mountain Streams: Students' Ideas about Watersheds. *Journal of Geoscience Education*, 53(4), 381-386.
- Shepardson, D. and Harbor, J., 2004, ENVISION: the effectiveness of a dual-level professional development model for changing teacher practice. *Environmental Education Research*, 10(4), p.471-492.
- ^bWee, B., Fast, J., Shepardson, D. P., Harbor, J., and Boone, B., 2004, Students' perceptions of environmental-based inquiry experiences. *School Science and Mathematics*, 104 (3), p.112-118.
- Bell, C., Shepardson, D., Harbor, J., Klagges, H., Burgess, W., Meyer, J., and Luenberger, T., 2003, Enhancing Teachers' Knowledge and Use of Inquiry Through Environmental Science Education. *Journal of Science Teacher Education*, 14 (1), p.49-71.
- Shepardson, D., Harbor, J., Bell, C., Meyer, J., Luenberger, T., Klagges, H., and Burgess, W., 2003, ENVISION: Teachers as Environmental Scientists. *The Journal of Environmental Education*, 34(2) p.8-11.
- Cooper, B., Shepardson, D., and Harbor, J. 2002, Assessments as Teaching and Research Tools in an Environmental Problem-Solving Program for In-Service Teachers. *Journal of Geoscience Education*, 50, p.64-71.
- Klagges, H., Harbor, J., Shepardson, D., Bell, C., Meyer, J., Luenberger, T., and Burgess, W. 2002, Developing Learners' Perspectives of a Changing Earth: Using Aerial Photographs and Remote Sensing Images to Examine Land Use Change in the Local Environment. *Journal of Geography*. 101, p.137-143.
- Shepardson, D., Harbor, J., Bell, C., Meyer, J., Luenberger, T., Klagges, H., and Burgess, W. 2002, ENVISION: Inquiry-based environmental science. *Science Scope* 26(2), p.28-31
- Shepardson, D., Harbor, J., Cooper, B. and McDonald, J. 2002, The impact of a professional development program on teachers' understandings about watersheds, water quality, and stream monitoring. *The Journal of Environmental Education*, 33(3,) p.34-40.
- Shepardson, D., Harbor, J., Bell, C., Meyer, J., Luenberger, T., Klagges, H., and Burgess, W. 2002, ENVISION: Teachers as scientists. *The Hoosier Science Teacher* 27, p.86-91.
- Luenberger, T., Shepardson, D., Harbor, J., Bell, C., Meyer, J., Klagges, H., and Burgess, W. 2001, Inquiry and Aquifers: Developing an Understanding of Groundwater, Aquifers, and Water Supply Using Inquiry-Based Activities. *Science Scope* 25, p.20-26.
- Harbor, J. 2000, A Capstone Course in Environmental Geosciences. *Journal of Geoscience Education*, 48, p. 617-23.
- Harbor, J. and ^bKeattch, S.E. 1995, An undergraduate laboratory exercise introducing form-development modeling in glacial geomorphology. *Journal of Geological Education*, 43, p.529-33.

- Harbor, J. 1993, Development of a new course in storm water management and erosion control. *Journal of Geological Education*, 41, p.155-158.
- Harbor, J. and ^bMcClintock, K. 1993, Teaching applied geomorphology with an exercise in urban storm water management and erosion control. *Journal of Geological Education*, 41, p.38-42.
- Ross, D., Nash, T. and Harbor, J. 1992, Teaching land management with a microcomputer-based model. *Journal of Soil and Water Conservation*, 47, p.226-230.

Journal Publications – environmental science

- Yu, F. and Harbor, J. 2019, CSTAT+: A GPU-accelerated spatial pattern analysis algorithm for high-resolution 2D/3D hydrologic connectivity using array vectorization and convolutional neural network operations. *Environmental Modelling and Software*, 120, 104496, 13p. <https://doi.org/10.1016/j.envsoft.2019.104496>
- Yu, F. and Harbor, J. 2019, The effects of topographic depressions on multi-scale overland flow connectivity: a high-resolution spatial and temporal pattern analysis approach based on connectivity statistics. *Hydrological Processes*; 33, 1403-1419. <https://doi.org/10.1002/hyp.13409>
- Chen, J., Liu, Y., Gitau, M., Engel, B., Flanagan, D., Harbor, J., 2019, Evaluation of the effectiveness of green infrastructure on hydrology and water quality in a combined sewer overflow community. *Science of the Total Environment*, 665, 69-79. DOI: 10.1016/j.scitotenv.2019.01.416
- Orkhonselenge, A. and Harbor, J., 2018, Impacts of Modern Glacier Changes on Surface Water Resources in Western and Northern Mongolia. *Journal of Water Resource and Protection*, 10, 559-576. DOI: 10.4236/jwarp.2018.106031
- Jang, W., Engel, B., Harbor, J., Theller, L., 2017, Intrinsic aquifer vulnerability assessment for sustainable groundwater management using DRASTIC. *Water*, 9, 792. doi: 10.3390/w9100792
- Zhao, X., Harbor, J., Engel, B., Theller, L., Yu, F., Cao, G., Cui, Y., Tang, W., Zhang, M., 2017, Analysis of food-energy-water nexus based on competitive uses of stream flows of the BeiChuan River in Eastern QingHai-Tibet Plateau, China. *Journal of Environmental Progress and Sustainable Energy*. DOI: 10.1002/ep.12764
- Chen, J., Theller, L., Gitau, M., Engel, B., Harbor, J., 2017, Urbanization impacts on surface runoff of the contiguous United States. *Journal of Environmental Management*, 187, 470–481. <http://dx.doi.org/10.1016/j.jenvman.2016.11.017>
- ^dZhang, S., Du, H., Harbor, J., 2016, The effect of confining pressure and water content on compressive strength and deformation of ice-rich silty sand. *Permafrost and Periglacial Processes*. DOI: 10.1002/ppp.1906
- ^bPope, I., Bowen, D., Harbor, J., Shao, G., Zanotti, L., Burniske, G., 2015, Deforestation of Montane Cloud Forest in the Central Highlands of Guatemala: Contributing Factors and Implications for Sustainability in Q'eqchi' Communities. *International Journal of Sustainable Development and World Ecology*. <dx.doi.org/10.1080/13504509.2014.998738>
- ^bPope, I., Harbor, J., Zanotti, L., Shao, G., Bowen, D., Burniske, G., 2015, Cloud forest conservation in the Central Highlands of Guatemala hinges on improving soil conservation and intensifying food production. *Professional Geographer*. <dx.doi.org/10.1080/00330124.2015.1006556>
- ^bTorres-Valcárcel, A.R, Harbor, J., Torres-Valcárcel, A., Gonzalez-Aviles, C., 2015, Historical differences in temperature between urban and non-urban areas in Puerto Rico. *International Journal of Climatology*, 35, 1648–1661. <http://dx.doi.org/10.1002/joc.4083>
- Park, Y., Engel, B., Harbor, J., 2014, A web-based model to estimate the impact of best management practices. *Water*, 6, 455-471. <http://dx.doi.org/10.3390/w6030455>
- Pei, W., ^dZhang, M., Lai, Y., Jin, L., Harbor, J., 2014, Thermal stability analysis of crushed-rock embankments on a slope in permafrost regions. *Cold Regions Science and Technology*. 106-7, 175-82. DOI: 10.1016/j.coldregions.2014.07.005
- ^bTorres-Valcárcel, A., Harbor, J., Gonzalez-Aviles, C., Torres-Valcárcel, A., 2014, Impacts of urban development on precipitation in the tropical maritime climate of Puerto Rico. *Climate*, 2, 47-77. doi:10.3390/cli2020047
- ^dZhang, M., Lai, Y., Dong, Y., Jin, L., Pei, W., and Harbor, J., 2013, Laboratory investigation of the heat transfer characteristics of a two-phase closed thermosyphon. *Cold Regions Science and Technology*, 95, p.67-73. 10.1016/j.coldregions.2013.08.006

- ^dZhang, M., Min, K-H., Wu, Q., Zhang, J. and Harbor, J., 2012, A new method to determine the upper boundary condition for a permafrost thermal model: An example from the Qinghai-Tibetan Plateau. *Permafrost and Periglacial Processes*, 23, 301–311. 10.1002/ppp.1755.
- ^bDeb, D., Engel, B., Harbor, J., Lim, K., Hahn, L. and Zhai T., 2010, Modeling water quality impacts of fungicides used to combat soybean rust in Indiana. *Water, Air and Soil Pollution*, 207, 273-88.
- ^bGetman, D., Harbor, J., Johannsen, C., Engel, B and Shao, G. 2008. Improving the accuracy of historic satellite image classification by combining low-resolution multispectral data with high resolution panchromatic data. *Journal of Terrestrial Observation*, 1, p.70-87.
- ^bDalzell, B., Filley, T. and Harbor, J. 2007. The role of hydrology in annual organic carbon loads and terrestrial organic matter export from a Midwestern agricultural watershed. *Geochimica et Cosmochimica Acta*, 71, p. 1448-1462. doi:10.1016/j.gca.2006.12.009.
- ^bDavis Todd, C., ^bGoss, A., ^bTripathy, D., and Harbor, J., 2007. The effects of landscape transformation in a changing climate on local water resources. *Physical Geography*, 28, p.21-36.
- ^bDavis-Todd, C., Harbor, J. and Tyner, B. 2006. Increasing magnitudes and frequencies of extreme precipitation events used for engineering design in the Midwestern United States. *Journal of Soil and Water Conservation*, 61 (4), p.179-185.
- Lim, K., Engel, B., ^bMuthukrishnan, S., and Harbor, J. 2006. Effects of initial abstraction and urbanization on estimated runoff using CN technology. *The Journal of the American Water Resources Association* 42(3), p. 629-643.
- ^bMuthukrishnan, S., Harbor, J., Lim, K. and Engel, B. 2006. Calibration of a simple rainfall-runoff model for long-term hydrological impact evaluation. *Urban and Regional Information Systems Association Journal*, 18 (2), p.35-42.
- Choi, J-Y., Engel, B., Theller, L., Harbor, J., 2005. Utilizing web-based GIS and SDSS for hydrological land use change impact assessment. *Transactions of the ASAE* 48(2), p. 815-822.
- ^bDalzell, B., Filley, T., Harbor, J., 2005. Flood pulse influences on terrestrial organic matter export from an agricultural watershed. *Journal of Geophysical Research*, 110, G02o11, doi:10.1029/2005JG000043
- ^bDoyle, M., Stanley, E., Orr, C., ^bSelle, A., Sethi, S, and Harbor, J. 2005. Stream ecosystem response to small dam removal: Lessons from the heartland. *Geomorphology*, 71, p. 227-244.
- Tang, Z., Engel, B., Lim, K., Pijanowski, B., and Harbor, J., 2005. Minimizing the impact of urbanization on long term runoff. *Journal of the American Water Resources Association*. Vol 41(6), p.1347-59.
- Choi, J., Engel, B. ^bMuthukrishnan, S. and Harbor, J., 2003, GIS-Based Long-term Hydrologic Impact Evaluation for Watershed Urbanization. *Journal of the American Water Resources Association*, 39(3), p.623-635.
- ^bDoyle, M., and Harbor, J., 2003, A scaling approximation of equilibrium time-scales for sand-bed and gravel-bed rivers responding to base-level lowering. *Geomorphology*, 54, p.217-224.
- ^bDoyle, M., and Harbor, J., 2003, Modeling the effect of form and profile adjustments on channel equilibrium timescales. *Earth Surface Processes and Landforms*, 28, p. 1271-1287.
- ^bDoyle, M., Harbor, J., and Stanley, E., 2003, Toward policies and decision-making for dam removal. *Environmental Management*, 31, p. 453-465.
- ^bDoyle, M., Stanley, E., Harbor, J. and Grant, G., 2003, Dam removal: the need for science and policy, *EOS*. Vol. 84, No. 4, 28 January 2003, p.29, 32-33.
- ^bDoyle, M., Stanley, E. and Harbor, J., 2003, Channel adjustments following two dam removals in Wisconsin. *Water Resources Research*, 39 (1), 1011-26, doi:10.1029/2002WR001714.
- ^bDoyle, M., Stanley, E. and Harbor, J., 2003, Hydrogeomorphic controls on phosphorus retention in streams, *Water Resources Research*., 39(6), 1147-64, doi:10.1029/2003WR002038.
- ^bDoyle, M., Stanley, E., ^bSelle, A., ^aStofleth, J. and Harbor, J., 2003, Predicting the depth of erosion in reservoirs following dam removal using bank stability analysis. *International Journal of Sediment Research*, 18(2), p.115-121.
- Engel, B., Choi, J., Harbor, J. and ^dPandey, S., 2003, Web-Based DSS for Hydrologic Impact Evaluation of Small Watershed Land Use Changes. *Computers and Electronics in Agriculture*, 39(3), p.241-249.

- Rochon, G., Johannsen, C., Landgrebe, D., Engel, B., Harbor, J., Majumder, S. and Biehl, L. 2003, Remote sensing as a tool for achieving and monitoring progress toward sustainability. *Clean Technologies and Environmental Policy* 5, p.310-316.
- ^bBhaduri, B., ^bMinner, M., ^bTatalovich, S. and Harbor, J. 2002, Reply to Lantz and Hawkins' discussion of 'Long-term hydrologic impact of land use change: A tale of two models.' *Journal of Water Resources Planning and Management*, 128, p.463-4.
- ^bDoyle, M., Stanley, E. and Harbor, J. 2002, Predicting channel response to dam removal using geomorphic analogies. *Journal of the American Water Resources Association* 38(6), 1567-1579.
- ^dRenschler, C. and Harbor, J. 2002, Soil erosion assessment tools from point to regional scales –The role of geomorphologists in land management research and implementation. *Geomorphology*. 47, p.189-209.
- ^bBhaduri, B., ^bMinner, M., Tatalovich, S. and Harbor, J. 2001, Long-term hydrologic impact of land use change: A tale of two models. *Journal of Water Resources Planning and Management*, 127(1), p.13-19.
- ^bDoyle, M., and Harbor, J. 2001, A discussion of "Rapid Assessment of Channel Stability in Vicinity of Road Crossings" by Johnson et al., *Journal of Hydraulic Engineering*, 126, p.85-87.
- ^bGrove, M., Harbor, J., Engel, B. and ^bMuthukrishnan, S. 2001, Impacts of Urbanization on Surface Hydrology, Little Eagle Creek, Indiana, and Analysis of LTHIA Model Sensitivity to Data Resolution. *Physical Geography*, 22, p.135-153.
- ^bBhaduri, B., Harbor, J., Engel, B. and ^bGrove, M., 2000, Assessing watershed-scale, long-term hydrologic impacts of land use change using a GIS-NPS model. *Environmental Management*, 26(6), p. 643–658.
- ^bDoyle, M. and Harbor, J. 2000, Discussion of 'Evaluation of Rosgen's Streambank Erosion Potential Assessment in Northeast Oklahoma' by Harmel, et al. *The Journal of the American Water Resources Association*, 36, p.1191.
- ^bDoyle, M., Harbor, J., Rich, C., and Spacie, A. 2000, Examining the effects of urbanization on streams using indicators of geomorphic stability. *Physical Geography*, 21, p.155-181.
- ^bHerzog, M., Harbor, J., ^bMcClintock, K., Law, J., and Goranson, K. 2000, Reducing erosion problems from land development: An economic incentive for erosion control. *Journal of Soil and Water Conservation*, 55, p.43-49.
- ^dPandey, S., Gunn, R., Lim, K., Engel, B. and Harbor, J. 2000, Developing a web-enabled tool to assess long-term hydrologic impact of land use change: Information Technology Issues and a Case Study. *Urban and Regional Information Systems Journal*. 12(4), p.5-17.
- Harbor, J. 1999, Engineering geomorphology at the cutting edge of land disturbance: Erosion control on construction sites. *Geomorphology*, 31, p.247-263. Also published in Marston, R. and Giardino, R. (Eds). *Engineering Geomorphology*. Proceedings of the Binghamton Symposium.
- Leitch, C. and Harbor, J. 1999, Impacts of land use change on freshwater runoff into the near-coastal zone, Holetown watershed, Barbados: Comparisons of long-term to single-storm effects. *Journal of Soil and Water Conservation*, 54, p.584-592.
- ^bGrove M., Harbor, J. and Engel, B., 1998, Composite versus distributed curve numbers: effects on estimates of storm runoff depths. *Journal of the American Water Resources Association*, 34, p.1015-1023.
- ^bMinner, M., Harbor, J., ^aHappold, S., and ^aMichael-Butler, P., 1998, Cost apportionment for a storm water management system: differential burdens on landowners from hydrologic and area-based approaches. *Applied Geographic Studies*, 2, p.247-260.
- ^bBhaduri, B., ^bGrove, M., Lowry, C., and Harbor, J. 1997, Assessing the long-term hydrologic impact of land-use change: Cuppy McClure watershed, Indiana. *Journal of the American Water Works Association*, 89, p.94-106.
- ^bBhaduri, B., Harbor, J. and Maurice, P. 1997, Chemical load fractionation and trap efficiency of a construction site stormwater management basin. *Environmental and Engineering Geosciences*, 3, p.235-249.
- ^bAngelaki, V. and Harbor, J. 1995, Impacts of flow diversion for small hydroelectric power plants on sediment transport, NW Washington. *Physical Geography*, 16, p.432-443.
- ^bBhaduri, B., Harbor, J. and Maurice, P. 1995, Chemical trap efficiency of a construction site stormwater retention basin. *Physical Geography*, 16, p.389-401.
- Harbor, J., ^bSnyder, J. and Storer, J. 1995, Reducing nonpoint source pollution from construction sites using rapid seeding. *Physical Geography*, 16, p.371-388.

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Rice, N., Frankenburger, J., Harbor, J., Turco, R., ^aSwanke, T., and Brouder, S., 2002, Sources of variability of fecal coliform in an agricultural watershed. ASAE Meeting Paper number 022263.

Choi, J., Engel, B., Kim, Y., ^bBhaduri, B. and Harbor, J., 2001, Development of the Long Term Hydrologic Impact Assessment (LTHIA) WWW Systems. In: Stott, D., Mohtar, R. and Steinhart, G. (Eds.), *Sustaining the Global Farm*, selected papers from the 10th International Soil Conservation Organization Meeting, May 24-29, 1999, West Lafayette, IN. Published by the International Soil Conservation Organization. p.1018-1023.

Choi, J. Y., B. A. Engel, S. ^dPandey, and Harbor, J., 2001, Web based DSS for Evaluation of Hydrological Impact by Urban Sprawl, 2001 ASAE Annual International Meeting, Sacramento, California, Paper No, 012026

^bDeBroka, K., Frankenburger, J., and Harbor, J., 2001, GIS and streamflow analysis to support *E. coli* source identification. ASAE Meeting Paper number 012138.

^dPandey, S., Harbor, J., Engel B., 2001, A Web-Based Tool to Assess Impacts of Land Use Change. Urban and Regional Information Systems Association, Annual Conference Proceedings.

^dRenschler, C., Cochrane, T., Harbor, J. and Diekrugger, B., 2001, Regionalization methods for watershed management – Hydrology and soil erosion from point to regional scales. In: Stott, D., Mohtar, R. and Steinhart, G. (Eds.), *Sustaining the Global Farm*, selected papers from the 10th International Soil Conservation Organization Meeting, May 24-29, 1999, West Lafayette, IN. Published by the International Soil Conservation Organization. p.1062-1067.

^bBhaduri, B., Harbor, J., Engel, B., Lim, K. and Jones, D., 2000, Assessing the Long-Term Hydrologic Impact of Land Use Change Using a GIS-NPS Model and the World Wide Web. Proceedings of the National Conference on Environmental Problem Solving with Geographic Information System, September, 1999, Cincinnati, OH

^bDoyle, M., Stanley, E., Luebke, M., and Harbor, J., 2000. Dam removal: Physical, biological, and societal considerations. In Hotchkiss, R.H., and N. Glade (editors). Proceedings of the 2000 Joint Conference on Water Resource Engineering and Water Resource Planning and Management, American Society of Civil Engineers, NY.

Harbor, J., Engel, B., Jones, D., ^dPandey, S., Lim, K. and ^bMuthukrishnan, S., 2000, A Comparison of the Long-Term Hydrological Impacts of Urban Renewal versus Urban Sprawl. National Conference on Tools for Urban Water Resource Management and Protection, Environmental Protection Agency, Conference Proceedings.

Harbor, J., Tatalovich, S., Turco, R., Reicher, Z, Spacie, A., and ^bPoole, V., 2000, Using constructed wetlands to reduce nonpoint source pollution in urban areas. National Conference on Tools for Urban Water Resource Management and Protection, Environmental Protection Agency, Conference Proceedings.

- ^bDoyle, M., Miller, D. and Harbor, J., 1999. Should River Restoration be Based on Classification Schemes or Process Models? Insights from the History of Geomorphology. ASCE Water Resources Engineering Conf., Seattle, WA.
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- Lim, K.J., Engel, B., Kim, Y., ^bBhaduri, B. and Harbor, J., 1999. Development of the long term hydrologic impact assessment (L-THIA) WWW systems." Paper No. 992009, Amer. Society of Agricultural Engineers, St. Joseph, MI.
- ^dPandey S., Lim K.J., Harbor, J., Engel B., 1999, Modeling the Long-Term Hydrologic Impacts of Land Use Change. URISA Urban and Regional Information Systems Association, Annual Conference Proceedings.
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- ^bNighman, D. and Harbor, J., 1997, Sediment trap efficiency of a construction site stormwater management basin with and without baffles. Proceedings of the 28th Conference of the International Erosion Control Association, p.469-483.
- Harbor, J., 1993, An assessment of proposed measures to alleviate the environmental impacts of two large hydroelectric dams on the Elwha River, Washington, USA. In: Eckstein, Y. and Zaporozec, A (eds.), *Impact of Environmental and Climatic Change on Global and Regional Hydrology*, Second USA/CIS Joint Conference on Environmental Hydrology (3). American Institute of Hydrology / Water Environment Federation. p.199-214.
- Ross, D., Harbor, J. and Nash, T., 1993, SERS: Computer-based erosion control education. *Proceedings of Conference XXIV, International Erosion Control Association: 'Preserving Our Environment - The Race is On'*, p.505-515.
- Riedel, J., Stoker, B. and Harbor, J., 1992, Skagit River hydroelectric project erosion control plan. *Proceedings of Conference XXIII, International Erosion Control Association: 'The Environment is our Future'* p.207-226.
- Stoker, B. and Harbor, J., 1991, Dam removal methods, Elwha River, Washington. In: Shane R.M. (Ed.) *Hydraulic Engineering*. Proceedings of the National Conference on Hydraulic Engineering, American Society of Civil Engineers, New York, p.668-673.

Other Publications

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- Harbor, J., 2006, Erosion and Landscape Development, Scale (Space and Time Factors). In Lal, R. (ed) *The Encyclopedia of Soil Science, 2nd Edition*. Marcel Dekker Inc., New York. p.1005-1007.
- Harbor, J., 2002, Erosion and Landscape Development, Scale (Space and Time Factors). In Lal, R. (ed) *The Encyclopedia of Soil Science*. Marcel Dekker Inc., New York. p.425-427.
- Harbor, J., 1999, Cosmogenic Isotopes in Geomorphology: Preface. *Geomorphology*. (special journal issue preface).
- ^dTeufert, J. and Harbor, J., 1999, Darstellung der zukünftigen Nutzung von digitalen Fernerkundungsdaten für die MilGeo-Beratung. Militargeographischer dienst der Bundeswehr.
- Harbor, J., ^bGrove, M., ^bBhaduri, B. and ^bMinner, M., 1998, Long-Term Hydrologic Impact Assessment (L-THIA) GIS. *Public Works*, 129, p.52-54.
- Harbor, J. and ^bGrove, M., 1997, L-THIA: Long-Term Hydrological Impact Assessment - A Practical Approach. Ohio Environmental Education Fund / Purdue University, Manual.

- ^bCopland, L., Harbor, J., Gordon, S. and Sharp, M., 1996, Borehole Video From Multiple Sites Across a Section of the Haut Glacier d'Arolla, Switzerland. In: Colbeck, S. (Ed.), *Glaciers, Ice Sheets and Volcanoes: A Tribute to Mark F. Meier. Cold Regions Research and Engineering Lab, Special Report, 96-27*, p. 17-18.
- Harbor, J., ^bNighman, D., ^bBhaduri, B., ^bAngelaki, L. and Snyder, J. 1996, Sediment basins: Using sediment basins, sediment traps and modified stormwater management basins to reduce water pollution from construction sites in Ohio. Ohio Environmental Education Fund / Purdue University, Design Manual.
- Harbor, J., 1995, Glacial Geomorphology: Process and Form Development: Preface. *Geomorphology*. 14, p.85-86. (preface for a special journal issue)
- Morris, S. and Harbor, J., 1995, Geomorphology applied to environmental problems: Foreword. *Physical Geography*, 16, p.357-358. (foreword for a special journal issue)
- ^bCopland, L. and Harbor, J., 1995, A Glimpse at the Guts of a Glacier. 24 minute highlights video for glacier borehole video work. Copies distributed on request to over 100 scientists in 16 countries.
- Harbor, J., 1994, Construction Site SWPPPs - beyond erosion and sediment control. *Conservation Summit* (a publication of the Summit Soil and Water Conservation District), February/March Issue, p.2.
- Harbor, J., 1991, Review of: 'Mountain environments: An examination of the physical geography of mountains', by A. Gerrard. *Arctic and Alpine Research*, 23, p.227.
- Harbor, J., 1990, Review of: 'Slope stability - geotechnical engineering and geomorphology', by M. Anderson and K. Richards (Eds.). *Engineering Geology*, 29, p.259-260.
- Harbor, J., 1988, Review of: 'Earth's changing surface - an introduction to geomorphology', by M.Selby. *Quaternary Research*, 29, p.85-86.
- Harbor, J., 1988, Review of: 'Geomorphology, pure and applied', by M. Hart. *Quaternary Research*, 29, p.86.
- Nichols, H., Short, S., Elias, S. and Harbor, J., 1984, Sedimentation and palynology in high-level lakes, Front Range. *American Quaternary Association, Eighth Biennial Meeting, Field Guide* 11.
- Harbor, J., Hughes, J., Souch, C., Pearson, D., Parry, C. and West, C., 1981, Cambridge Lahul-Spiti Expedition, 1981. In: Souch, C. and Harbor, J. (eds.) *Cambridge Expeditions Journal 1981*, p.28-31, Cambridge University Explorers and Travelers Club, Cambridge, UK (70pp.).

EXTERNAL FUNDING

- Swedish Research Council, SEK 3,400,000. *MAGIC-DML: Mapping, Measuring, and Modeling Geomorphology and Ice Change in Dronning Maud Land, Antarctica*. Harbor, Glasser, Stroeven, and Rogozhina, 2017-2020.
- National Science Foundation, \$100,000. *GeoConnections: Evaluating the Impact of Place-Based, Culturally-Relevant Geoscience Learning Modules on Undergraduate Students' Connections to Geoscience Concepts and Careers*. Harbor and Black, 2017-19.
- National Science Foundation, \$550,000 *Mapping, Measuring, and Modeling Geomorphology and Ice Change in Dronning Maud Land, Antarctica*. Harbor and Lifton, 2016-2020.
- European Union, Marie Curie International Incoming Fellowship, €137,569. *Changing Glaciers: Enhancing International Research Capacity and Learning Collaboration in Reconstructing the Impacts of Glacier Responses to Climate Change*. Harbor, 2013-14.
- Swedish Research Council, SEK 3,400,000. *Glacial and Climate History of Central Asia and Tibet*. Stroeven, Harbor, Liu, Caffee, and Hattestrand. 2012-2016.
- National Geographic Society, \$24,450. *Spatial patterns of past glacier variations in the Tianshan Mountains, Kyrgyzstan*. Harbor, Lifton, Stroeven, and Mandychev. 2012-2013.
- Halliburton Foundation, \$15,000. *Science Express: Integrating Geoscience into Core High School Chemistry and Biology, Phase 2*. Smith and Harbor, 2012-2013.
- Stockholm University, SEK 200,000, *Joint Masters course in glacial landscapes and environments between Stockholm and Purdue universities*. Stroeven, Jansson, and Harbor. 2012-13.
- Halliburton Foundation, \$12,000. *Science Express: Integrating Geoscience into Core High School Chemistry and Biology, Phase 1*. Smith and Harbor, 2010-2011.

Lily Foundation, \$1,750,000. *Supporting and Enhancing Interns for Indiana*. Lechtenburg, Burgess, Duval and Harbor. 2008-2013.

National Science Foundation, \$500,000 *Mentoring Native American Students for Success in Geoscience Graduate Programs*. Harbor, Zurn-Birkhimer, Shaw, and Ridgway. 2006-2010.

National Science Foundation, \$1,624,006. *The Indiana Interdisciplinary GK-12: Bringing Authentic Problem Solving in STEM to Rural Middle Schools*. Harbor, Jamieson, Eiler, and Dark, 2006-2010.

Lily Foundation, \$1,481,500. *Discovery Learning Center: Seed Funding*. Award to the Center. 2005-2008.

U.S. Department of Agriculture, National Needs Fellowship Program, \$128,000. *Ecological Sciences and Engineering Graduate Program*. B. Engel, L. Bowling, S. Broussard, J. Harbor and S. Rao. 2005-2007.

U.S. Geological Survey, \$20,000. *The effects of landscape transformation in a changing climate on Indiana's water resources*. J. Harbor and students C. Davis, A. Goss, and D. Tripathy. 2005-2006.

Lily Foundation, \$1,500,000. *Interns for Indiana*. Discovery Learning Center program as part of a \$3.5M grant to Purdue University. Award to the Center. 2004-2007.

U.S. Department of Agriculture, \$275,000. *Building capacity of E. Coli Monitoring Networks*. Multi-state cooperative grant; Purdue PIs, Harbor, Frankenberger, and Hartman. 2003-2006.

National Science Foundation, \$307,443. *Cosmogenic nuclide-based boundary conditions for numerical ice sheet models: A simulation of the Fennoscandian Ice Sheet through a glacial cycle*. Harbor, Stroeven, and Fabel. 2002-2006.

Indiana Department of Natural Resources, \$43,180, *Indiana Storm Water Quality Manual*. J. Harbor, 2002-2003

Lily Foundation, \$270,500. *Discovery Learning Center: Establishing the Center*. 2001- 04.

Eisenhower Professional Development Program, \$56,000. *Environmental Science Institute for Indiana Teachers*. D. Shepardson and J. Harbor, 2001-2002.

U.S. Environmental Protection Agency, \$50,000. *An internet/GIS-based tool to assist community planners: Phase IIIb*. D. Jones, B. Engel, J. Harbor and J. Lee, 2001-2002.

New Zealand-United States Educational Foundation, \$16,000. *Fulbright Senior Scholar, New Zealand*. J. Harbor, 2000-2001.

U.S. Department of Education, \$380,625, *Graduate Assistance in Areas of National Needs Fellowship Program: Computational Earth Sciences*. King, Harshvardhan, Braile, Harbor and Clayson, 2000-2003.

U.S. Environmental Protection Agency, \$125,000. *An internet/GIS-based tool to assist community planners: Phase IIIa*. D. Jones, B. Engel, J. Harbor and J. Lee, 2000-2001.

U.S. Department of Agriculture, \$138,000. *National Needs Fellowships Program, Watershed Science*. Engel, Harbor, Spacie, Parker, Rao. 2000-2002.

National Science Foundation, \$178,000, *Glacial chronology, erosion patterns and topographic development in the northern Swedish mountains using cosmogenic radionuclides*. J. Harbor, D. Elmore and A. Stroeven 1999-2002.

National Science Foundation, \$1,188,553. *ENVISION: A regional environmental science institute for teachers*. D. Shepardson and J. Harbor, 1999- 2004.

U.S. Environmental Protection Agency, \$200,000. *An internet/GIS-based tool to assist community planners: Phase II*. D. Jones, B. Engel, J. Harbor and J. Lee, 1999-2000.

U.S. Department of Agriculture, \$697,588. *Watershed scale assessments of E. coli contamination: implications of source identification for public policy debate*. R. Turco, G. Thomas, C. Nakatsu, S, Brouder, A. Bhunia, J. Harbor and J. Frankenberger. 1999-2002.

NASA, \$160,000. *Increasing Public Benefits of NASA's Existing Earth Sciences Data: Multipurpose Applications in an Agricultural Watershed*. B. Engel, J. Frankenburger, J. Harbor, C. Johannsen and G. Thomas. 1999-2001.

Eisenhower Professional Development Program, \$68,893. *Environmental Science Institute for Indiana Teachers*. D. Shepardson and J. Harbor, 1999-2000.

U.S. Geological Survey, \$25,000, *Impacts of development on nonpoint source pollution and sediment levels*. J. Harbor. 1999-2001.

Swedish Natural Science Research Council, SEK 600,000. *Mountain valley evolution: Geomorphology, GIS and cosmogenic isotope dating*. A. Stroeven and J. Harbor. 1999-2001.

City of Indianapolis, \$30,500 *Technical Assistance for City of Indianapolis Watershed Teams*. J. Harbor, B. Engel, D. Jones and S. Muthukrishnan. 1999.

National Science Foundation, \$ 24,895. *Using Local Geoenvironmental Research Projects to Achieve National Science Education Standards: A Pilot Summer Course for In-Service Teachers*. J. Harbor, and D. Shepardson. 1998-2000. (Collaborative grant with additional funding of \$55,906 to IUPUI).

Swedish Natural Science Research Council, SEK 62,016. *Mountain valley evolution: Geomorphology, GIS and cosmogenic isotope dating*. A. Stroeven and J. Harbor.

U.S. Environmental Protection Agency, \$125,000. *An internet/GIS-based tool to assist community planners: Phase I*. D. Jones, B. Engel, J. Lee, and J. Harbor, 1998-1999.

U.S. Professional Golf Association, \$125,000. *Innovative water quality management utilizing wetlands construction on a golf course*. R. Turco, J. Harbor and Z. Reicher, 1998-2002.

National Science Foundation, \$62,112. *Acquisition of a new automated x-ray powder diffractometer*. R. Giere, R. Sack, J. Harbor, D. Granger and K. Ridgeway. 1998-1999.

National Science Foundation, \$5,000. *Research Experience for Undergraduates: Enhanced alpine glacial chronology using cosmogenic nuclides*. J. Harbor, D. Elmore, A. James and D. Dahms. 1998-1999.

Private Donor, \$68,000. *Establishment of a water quality monitoring network for the Purdue/Kampin Golf Course*. Z. Reicher, J. Harbor and R. Turco, 1998-1999.

U.S. Environmental Protection Agency, \$672,323. *Development and evaluation of ecosystem indicators for urbanizing Midwestern watersheds*. A. Spacie, J. Harbor, M. Hondzo, B. Engel, 1997-2000.

Intel, \$250,030. *Advanced computational modeling for environmental and natural resources protection*. B. Engel, J. Harbor, J. Lee, G. Parker, J. Wright, C. Johannsen and R. Turco, 1997-1998.

City of West Lafayette, Parks and Recreation Department, \$9,750. *Ecological history of Celery Marsh*. T. Swinehart and J. Harbor, 1997-1999.

Indiana Department of Environmental Management, \$22,300. *Cuppy-McClure baseline monitoring program*. City of West Lafayette, Woolpert Consultants and J. Harbor. 1997-1998.

NASA, \$90,000. *Laboratory for applications of remote sensing: A center of excellence in remote sensing applications to regional and global integrated environmental assessments*. Johannsen, Landgrebe, Baumgardner, Engel, Gillespie, Grant, Harbor, Parker, Shao, Vorst, 1997-1998.

National Science Foundation, \$78,230. *An integrated earth and atmospheric sciences computer laboratory for undergraduate instructional improvement*. Clayson, Braille, Harbor, King, Ogg, Oglesby and Petty 1997-1999.

National Science Foundation, \$75,000. *Upgrading (and expanding) the geophysics computer network at Purdue*. King, Braille, Granger, Johnson, Harbor and Sack, 1997-1999.

National Science Foundation, \$5,000. *Research Experience for Undergraduates: Reconstructing spatial patterns of glacial erosion, a new approach using cosmogenic nuclides*. Harbor, Elmore, James and Dahms. 1997-1998.

National Science Foundation, \$180,000. *Reconstructing spatial patterns of glacial erosion: a new approach using cosmogenic nuclides*. J. Harbor, D. Elmore, A. James and D. Dahms. 1996-1998.

National Science Foundation, \$12,766. *Evaluation of a General Sliding Law by Flow Simulation, Haut Glacier d'Arolla, Switzerland*. J. Harbor. 1996-1997.

Great Lakes Basin Commission Program for Erosion and Sediment Control, \$15,778. *An economic incentive for construction site erosion control - Ohio study*. Geauga SWCD and J. Harbor. 1996-1997.

Great Lakes Basin Commission Program for Erosion and Sediment Control, \$14,948 *An economic incentive for construction site erosion control - Indiana study*. St. Joseph SWCD, Indiana Dept. Natural Resources, and J. Harbor. 1996-1997.5

Lake Erie Protection Fund, \$100,000. *Assessment of the effectiveness of retrofitted stormwater basins in reducing nonpoint source pollution in the Cuyahoga watershed*. J. Harbor, R. Carlson, P. Maurice, J. Lee and the Summit, Cuyahoga, Portage and Geauga Soil and Water Conservation Districts, 1995-1997.

Ohio Environmental Education Fund (Ohio EPA), \$38,962. *Assessing the Impact of Land Use Change on Runoff, Recharge and Wetland Hydrology*. J. Harbor and D. Palmer, 1995-1996.

National Science Foundation, Division of Polar Programs, \$10,505. *Research Experience for Undergraduates: Evaluation of a General Sliding Law by Flow Simulation, Haut Glacier d'Arolla, Switzerland*. J. Harbor, 1995-1996.

Woolpert Consultants / City of West Lafayette, Indiana, \$7,400. *Baseline environmental data collection and analysis, Celery Bog, West Lafayette, Indiana*. J. Harbor, D. Leap, S. Fritz and S. King. 1995-1996.

National Science Foundation, Division of Polar Programs, \$89,834. *Evaluation of a General Sliding Law by Flow Simulation, Haut Glacier d'Arolla, Switzerland*. J. Harbor. 1994-1997.

Ohio Environmental Education Fund (Ohio EPA), \$11,951. *Development and Dissemination of a Manual for Sedimentation Basin Design*. J. Harbor, D. Palmer, D. Nighman, B. Bhadhuri and J. Snyder, 1994-1996.

Ohio Nonpoint Source Project - Phosphorous Reduction Program (Ohio EPA), \$20,000. *Phosphorous reduction from construction site erosion control*. Cuyahoga Soil and Water Conservation District, J. Storer, (USDA-Soil Conservation Service), and J. Harbor, 1993.

Great Lakes Basin Program for Soil Erosion and Sediment Control, \$35,000. *Construction Site Erosion Control: Demonstration of an Alternative Approach*. Cuyahoga Soil and Water Conservation District, Storer, J. (USDA-Soil Conservation Service), Harbor, J., and Mecklenburg, D. (Ohio Department of Natural Resources), 1992-94.

Ohio Board of Regents, \$64,090. *Ohio Wetlands Research*. Palmer, Cabaniss, Carlson, Cooke, Fisher, Harbor, Havens, Heath, Miller, Smith and Wilson, 1992-1993.

Ohio Environmental Education Fund (Ohio EPA), \$3,415. *Federal Non-Point Source Pollution Regulations: A Professional Workshop*. J. Harbor and D. Ross (USDA-Soil Conservation Service), 1992.

Ohio Board of Regents / Northeast Ohio Inter-Institutional Urban Research Consortium, \$14,956. *Managing urban development in wetland watersheds, northern Summit County, Ohio*. J. Harbor, P. Fisher and T. Wilson, 1991-1992.

Ohio Environmental Education Fund (Ohio EPA), \$4,741. *Development of a College-Level Course in Storm Water Management and Erosion Control*. J. Harbor, 1991-1992.

National Science Foundation, \$127,450. *Large scale glacial erosion and debris production*. Grant to B. Hallet with J. Harbor as junior author and graduate research assistant.

Geological Society of America, Quaternary Geology and Geomorphology Division, *J. Hoover-Mackin Research Award (Masters Level)*. J. Harbor.

Geological Society of America and Sigma Xi, the Scientific Research Society. *Terrestrial and lacustrine evidence for Holocene climatic/geomorphic change in the Blue Lake and Green Lakes Valleys of the Colorado Front Range*. J. Harbor.

The Royal Geographical Society, the New York Explorers Club, the David Richards Fund, the Gilchrist Educational Trust and Industry and University contributions: \$5,500 in grants for the Cambridge Lahul Spiti Expedition, including undergraduate thesis research by Harbor on *The glacial deposits and debris transport paths of the Bara Shigri Glacier, Himachal Pradesh, India*. J. Harbor, C. Souch and J. Hughes.

INTERNAL FUNDING

- Purdue University Study Abroad and International Learning Grant, \$9,000. *Glaciation in Sweden, study abroad.* Harbor, 2014
- Purdue University Instructional Technology Grant, \$39,919. *Online course development: Introduction to Geography.* Harbor, 2013-14
- Purdue University Study Abroad and International Learning Grant, \$7,000. *Glaciation in Sweden and Norway, study abroad.* Harbor, 2013
- Purdue University Teaching Academy Educational Grant, \$1,500. *International Greening Education Conference, Germany, November 2013.* Harbor, 2013.
- Purdue Research Foundation, International Travel Grant, \$1,000, *Symposium on Science and Monitoring of Glaciers during the 50th Anniversary of Tianshan Glaciological Station in Xinjiang, China, August 8-12, 2011.* Harbor, 2011.
- Purdue University, \$8,000, Asian Initiative Grant: *Sino-American Center for Science Education Research and Engagement.* L. Bryan and J. Harbor, 2006.
- Purdue University, \$2,000. *Service Learning Development Grant.* J. Harbor, 2006.
- Purdue Research Foundation, \$10,200. *The impacts of land use and climate change on changing flood frequency in the Midwest.* J. Harbor, 2005-2006
- Purdue University Special Initiatives Fellowship Program, 1 year of graduate student support. *Graduate Research Fellowship for Women in Environmental Geosciences.* J. Harbor, 1995-2002 (annual new competitive grant)
- Showalter Trust Fund, \$100,000, *Dam removal science and engineering: A new research thrust.* J. Harbor, R. Mohtar, D. Shepardson, D. Granger, B. Engel, T. West, T. Filley and L. Braile. 2000-2001.
- Purdue Research Foundation, \$12,646. *Development and testing of an integrated water pollution assessment tool for analyzing the impacts of urban sprawl.* J. Harbor and S. Muthukrishnan, 2000-2001.
- Purdue University, \$11,600. *Development of a capstone environmental science course for elementary education majors.* J. Harbor, 1998-1999.
- Purdue University, \$25,000. *Field equipment for earth surface processes courses in Earth and Atmospheric Sciences.* D. Granger, J. Harbor, S. King and C. Clayson, 1998.
- Purdue University, Multi-Media Development Center, \$16,000, *A multimedia tool for campus-wide teaching of Geographic Information Systems.* W. Mills, J. Harbor, B. Engel, G. Shao, J. Bethel, D. Shepardson, J. Frankenburger, L. Theller. 1998-1999.
- Purdue University, Academic Reinvestment Program, \$225,000. *Advanced applications of Geographic Information Systems (AAGIS) Center: GIS for interdisciplinary education and research.* Turco, Engel, Parker, Lambert and Harbor, 1997-2000.
- Purdue University, Faculty Study in a Second Discipline, \$3,500 and 1 semester teaching leave. *Geographic Information Systems.* J. Harbor, 1998.
- Showalter Trust Fund, \$50,000. *The role of artificial wetlands and stormwater basins in controlling surface water pollution in urban watersheds.* J. Harbor. 1996-1997.
- Purdue Research Foundation, \$20,400. *Modeling the impact of stormwater basins on nonpoint source pollution in urban/suburban watersheds.* J. Harbor, 1995-1997.
- Kent State University Research Council, 1 semester research leave. *Evaluation of a Glacial Sliding Law by Flow Simulation, Haut Glacier d'Arolla, Switzerland.* J. Harbor.
- Kent State University - University Research Council, \$6,500. *Numerical modeling of valley development in glaciated mountains.* J. Harbor, 1992.

TEACHING EXPERIENCE

Department of Earth, Atmospheric, and Planetary Sciences, Purdue University:

Leadership efforts have included

- Co-Directed, ENVISION, an NSF-funded institute helping middle school teachers acquire skills and experience in integrating inquiry-based local environmental research into existing classes.
- Undergraduate studies committee, chair.
- Led revision of the Environmental Geosciences major requirements.
- Designed and coordinated the undergraduate recruitment program.
- Designed the capstone science experience for elementary education majors.
- Initiated and taught an undergraduate teaching internship program.
- Teaching Academy peer teaching mentor.
- Horizons program mentor (first generation students).

Undergraduate Courses Taught

- Introduction to Geography - introductory course, fully online and asynchronous, taught in 4-week, 7-week, and 16-week formats, meets Science, Technology, and Society core requirement.
- Environmental Geology - major and non-major introductory course.
- Applied Geomorphology - mid level undergraduate major course, also taken by graduate students.
- Internship in Environmental Geosciences - junior/senior elective.
- Teaching Internship – mentored introduction to teaching assistant role for undergraduates.
- Capstone Science for Elementary Education - capstone course for elementary education majors.

Combined Undergraduate / Graduate Courses Taught

- Applications of Environmental Geosciences - capstone course for Environmental Geosciences seniors.
- Study Abroad: Glaciation in Sweden and Norway
- Study Abroad: Paleoglaciation in Sweden

Graduate Courses Taught

- Created Wetlands (Team taught through the Environmental Science and Engineering Institute).
- Advanced Geomorphology Seminar.
- Urbanization and the Environment.
- Glacial and Quaternary Geology.
- Graduate Student Engagement in K-12 Education

Graduate and Post-Doctoral Students - Advisor/Co-Advisor

In Progress

- Jennifer Newall (PhD co-supervisor, Stockholm University): Reconstructing long-term ice sheet change in Queen Maud Land, Antarctica.

Completed Post-Doctoral

- Jakob Heyman (2011-13): Tibetan Plateau catchment erosion rates.
- Nievita Bueno-Watts (2011-12): Geoscience education research on pathways to geoscience careers for Native American students and on free-choice learning in the geosciences.
- Yingkui Li (2002-5): Assessing spatial patterns of glacial erosion using cosmogenic nuclides.
- Jonghee Kim (2002-3): A comparison of high school teaching of earth sciences in USA and Korea.
- Derek Fabel (1997-9, co-advisor). Applications of cosmogenic nuclides to glacial geomorphology.

Completed PhD

- Darryl Reano (2019), GEOCONNECTIONS: The impacts of geoscience education informed by indigenous research frameworks. Co-Advisor.
- Feng Yu (2018), Multiscale hydrologic processes modeling using spatiotemporal patterns and hydrologic connectivity.

Robin Blomdin (2016, co-supervisor, Stockholm University): Paleoglaciology of the Tian Shan and Altai Mountains, Central Asia.

Natacha Gribenski (2016, co-supervisor, Stockholm University): Comparison of dating methods for paleoglacial reconstruction in Central Asia.

Angel Torres-Valcarcel (2013, co-advisor): Impact of land use and climate change on temperature and precipitation in Puerto Rico.

Ping Fu (2013, co-supervisor, Stockholm University): Paleoglaciology of Shaluli Shan, southeastern Tibetan Plateau.

Carrie Davis (2007): Understanding and Managing the Impacts of Climate Change in a Complex Environmental System: The Effects of Increasing Precipitation and Land Use Change on Streamflow.

Debjani Deb (2007): Estimating environmental exposure of emerging agricultural contaminants using spatial data analysis and geographic information systems.

Alison Goss (2007): Evaluating the historical impacts of landscape transformation on hydrologic fluxes for environmental assessment and modeling.

Dibyajoti Tripathy (2007): Development of a decision support tool for assessing impacts of land-use change on groundwater quantity.

Bryan Wee (2007, co-advisor): The development of environmental attitudes of middle school students, and the impacts of classroom activities

Vickie Poole (2006): Hydrologic and pollutant trap performance of constructed wetlands and vegetated channels.

Jacob Napieralski (2005): Ice sheet reconstruction testing using a landform GIS to constrain basal boundary conditions.

Brent Dalzell (2004, co-advisor): Biogeochemistry of wetlands.

Suresh Muthukrishnan (2002): Development of L-THIA for point source pollution.

Martin Doyle (2002): Fluvial responses to urbanization and dam removal.

Budhendra Bhaduri (1999): A GIS-based model to assess the long-term impacts of land use change on hydrology and nonpoint source pollution.

Kirk Gregory (1996, Kent State University, co-advisor): An assessment of spatial aggregation and parameterization in lumped parameter and distributed parameter nonpoint source pollution models.

Completed Master of Science

Robin Blomdin (2015): Paleoglaciology of the Tian Shan and Altai Mountains, Central Asia.

Ian Pope (2014): Deforestation of Cloud Forest in the Central Highlands of Guatemala: Soil Erosion and Sustainability Implications for Q'eqchi' Maya Communities.

Christine Kassab (2012): Paleoglaciology of the Dalijia Shan, Northeastern Tibetan Plateau.

Ping Fu (2011) Glacial geomorphology of the Haizishan area, SE Tibetan Plateau

Nathan Rice (2002): E.coli in agricultural ditches. (co-advisor)

Dan Getman (2001): Enhancing Precision and Accuracy in Classifying Multispectral Satellite Imagery.

Nick Jokay (2001): Monitoring impacts of land development on sediment loads in Indian Creek, Indianapolis.

Krysten DeBroka (2001): Evaluation of sources of e coli contamination in tributaries to Lake Shafer, Indiana.

Marie Minner (1998): Sensitivity analysis and advanced applications of L-THIA.

Martha Herzog (1997): Reducing erosion problems from land development: An economic incentive for erosion control.

Matt Grove (1997): Development of a GIS model for assessing the long-term hydrologic impact of land use change.

Melanie McQuinn (1996): Refined chronology of Indiana glaciation using cosmogenic radionuclides.

Luke Copland (1996): Numerical modeling of cross-section flow for the Haut Glacier d'Arolla, Switzerland.

Budhendra Bhaduri (1995, Kent State University): An empirical evaluation of the pollutant trapping efficiency of a stormwater retention basin with respect to phosphorus and selected heavy metals.

Dawn Nighman (1994, Kent State University): Empirical and model-based studies of the effectiveness of sedimentation basins in reducing storm water pollution from construction sites.

Keith McClintock (1993, Kent State University): Assessing and managing the impacts of development and land use change on sediment and water supplied to a wetland: Hudson Township, Summit County, Ohio.

Sharen Keattch (1993, Kent State University): A temporal and spatial analysis of the impacts of Holocene fires at the alpine/sub-alpine transition of the Colorado Front Range, using soil and sediment analyses.

Other

Christian Renschler (Univ. Bonn, Germany, Ph.D., 2000). Visiting scholar, hydrologic modeling. 1998-2000.

Susan Tatlovitch (Civil Engineering, 1998): Chemical and sediment trap efficiency of a stormwater detention biofiltration pond.

John Teufert (Ph.D., ABD): Applications of remote sensing and GIS to disaster management. Employed by the Western European Union Remote Sensing Centre, Spain.

Richard Middleton (Ph.D.): Glaciology and GIS. Transferred to University of California.

Linda Horn (Ph.D.): Measuring rates of glacial and nonglacial erosion in alpine environments using cosmogenic radionuclides. (Co-Advisor with Dr. Elmore). Deceased.

Andy Selle (MS): Evaluation of alternate approaches to channel restoration. Transferred to Civil Engineering.

Yarice Rodriguez (MS): Environmental policy in atmospheric science. Transferred to University of Illinois.

Undergraduate and Professorial Research Assistants and Research Projects

Gryphen Goss, 2017-2018, Social media for the MAGIC-DML research program.

Mia McGee, 2017-2018, Qualitative analysis of infusing cultural contexts into geoscience learning.

Penelope Realf, 2017-2018, Qualitative analysis of K-12 outreach on graduate students.

Maddie McGrath and Julia Spinolo, 2016-2017, Social media for the MAGIC-DML research program.

Daniel Moore, 2016-2017, Qualitative analysis of K-12 outreach on graduate students.

Andria Schmitz, 2015. Qualitative analysis of K-12 outreach on graduate students.

Gloria Rong, 2014. Qualitative analysis of K-12 outreach on graduate students.

Justin Orr, 2012-2013. Laboratory analysis for cosmogenic radionuclides.

Haowei Chen, 2011. Pre-service elementary teachers and science literacy.

Nathan Bleeke, 2011-2013. Laboratory analysis for cosmogenic radionuclides.

Sandra Simonis, 2004-2006. *E. coli* volunteer monitoring data analysis.

Hilary Smith, 2000-2004. Water quality field and lab assistant.

Lauren Patterson, 2000-2004. *E. coli* project field assistant and outreach assistant.

John Stofleth, 1999-2003. Water quality and core preparation lab assistant, dam removal studies field assistant.

Jennifer Rilling, 1999-2001. Water quality, web page and digitizing assistant.

Kristen Reinhart, 1999-2001. Long-term hydrologic monitoring of the Cuppy-McClure watershed.

Trisha Swanke, 1998-2001. Evaluation of construction site erosion control inspection programs in Indiana

Erin Creasy, 1998-2000. Grant-funded research assistant in water-quality monitoring, independent research project on pollutant buildup on urban surfaces.

Maggie Sullivan, 1998-2000. Grant-funded research assistant in water-quality monitoring.

Charles Steele, 1998-2000: NSF-funded research assistant, laboratory studies of cosmogenic radionuclide exposure age dating. Independent research on patterns of glacial erosion using cosmogenic radionuclides.

Kelly Daley, 1997-1998: NSF-funded research assistant, field and laboratory studies of cosmogenic radionuclides applied to glacial erosion patterns.

John Hawthorne, 1996-1998: Independent research on the distribution and characteristics of peat in the Celery Bog, West Lafayette, Indiana.

Charles Steele, 1997-8: Laboratory studies of cosmogenic radionuclide exposure age dating.

John Hawthorne, 1995-6: Impact of land use change on the hydrology of the Celery Bog, Indiana.

Andrew Elmore, 1995-1996: NSF-funded research assistant, computer-modeling work in glaciology based on field data from Glacier d'Arolla, Switzerland.

Marie Minner, 1995: NSF-funded research assistant, fieldwork in glaciology on Glacier d'Arolla, Switzerland.

Marcel Bigger, 1994: Independent research project on input, transport and output processes and their geomorphic impact in high mountain environments.

Rik Hoy (Honor's Thesis), 1992-1993: A study of the origin of fine-grained sediments in the Ohio Caverns.

John Carney, 1992: The extension and development of William Morris Davis' cycle of erosion.

Keith McClintock, 1990-1991: Implications of river meandering for bridge siting along the Chagrin River near Holden Arboretum, Ohio.