

Colin N. Brooks

Michigan Tech Research Institute, Michigan Technological University
3600 Green Court, Suite 100, Ann Arbor, MI 48105

cnbrooks@mtu.edu • 734-913-6858 (ph) • 734-913-6880 (fax) • 734-604-4196 (mobile)

Education:

Michigan Technological University, Ph.D., Ecology – in progress, anticipated spring 2018. Advisor: Dr. Amy Marcarelli.

Master of Environmental Management, Duke University School of the Environment, Durham, NC. 1993.

Bachelor of Science, *Pre-Forestry*, Magna Cum Laude, Lenoir-Rhyne College, Hickory, NC. 1992.

Professional Experience:

Research Scientist and Environmental Science Lab Manager – May 2005 to present; **Adjunct Lecturer - Biological Sciences Department**, January 2008 to present

Michigan Tech Research Institute (MTRI), Ann Arbor, MI (Michigan Technological University)

(As part of the Altarum Institute, 2005-2006)

- Integrating diverse spatial data sets from multiple agencies and levels of government to create content-rich geospatial databases and Decision Support Systems for rapid mapping and problem solving solutions, focusing on Great Lakes ecology and transportation.
- GLRI Co-Investigator for Cladophora mapping and Harmful Algal Bloom mapping applied projects; NASA Co-Investigator for feasibility of mapping Cladophora algae via remote sensing, and on tuning color-producing agent algorithms for Great Lakes multi-scale assessment with satellite imagery and estimating Great Lakes productivity.
- Mapping changing patterns in land use and land cover types in diverse landscapes using advanced object-based and multi-temporal methods of analyzing remote sensing data for the Nature Resource Conservation Service (NRCS), the University of Michigan Water Center, the Michigan DOT, and for historical mining sites.
- Applying remote sensing data to evaluate the hydroperiod and soil moisture of diverse ecosystems in the Great Lakes and Texas.
- Currently working with the Great Lakes Observing System on making remote sensing science products more easily available to end users.
- Leading new applications of geospatial modeling for Arctic transportation issues.
- Developing new applications of Unmanned Aerial Vehicles for applications in transportation, aquatic ecology, and wetlands assessment.
- Providing leading expertise on ESRI's ArcGIS software and extensions for the MTRI Spatial Analysis Laboratory.

GIS Analyst - May 1996 to May 2005

University of California - Berkeley, Integrated Hardwood Range Management Program (IHRMP), Hopland Research and Extension Center, Hopland, CA

- Provided GIS analysis and software advice to UC-Berkeley researchers on multiple research projects. Projects included: modeling the impacts of local government land-use policies with GIS, analyzing the effects of expanding vineyards and rural parcelization on biodiversity, salmonid restoration planning with GIS, the impacts of urbanization on native carnivores, the building of Lyme disease risk models, improved methods of integrating GIS in watershed restoration planning, open space planning, and establishing patterns of natural oak woodland regeneration.

- Extended research results to the scientific community, government agencies, and members of the public through presentations, peer-reviewed publications, maps, newsletter articles, and web sites.
- Designed, built, and improved ArcIMS sites based on HTML and Javascript for the Russian River Interactive Information System (RRIIS) so that local community members could more easily access, understand, and display spatial data for watershed restoration efforts.

GIS Specialist - May 1993 to May 1996

Savannah River Forest Station, USDA Forest Service, New Ellenton, SC

- Utilized ARC/INFO GIS, including querying of Oracle databases, for forest management and research support on a 200,000 acre site.

Example Publications:

Brooks, C., A. Grimm, A., R. Shuchman, M. Sayers, N. Jessee, N. 2015. A satellite-based multi-temporal assessment of the extent of nuisance *Cladophora* and related submerged aquatic vegetation for the Laurentian Great Lakes. *Remote Sensing of Environment*, 157: 58-71.

Dobson, R. J., Colling, T., Brooks, C. , Roussi, C., Watkins, M. K., & Dean, D. 2014. Collecting Decision Support System Data Through Remote Sensing of Unpaved Roads. *Transportation Research Record*, Vol. 2433, 108-115.

Shuchman, R. A., M. J. Sayers and C. N. Brooks. 2013. Mapping and monitoring the extent of submerged aquatic vegetation in the Laurentian Great Lakes with multi-scale satellite remote sensing. *Journal of Great Lakes Research*, 39(1): 78-89.

Bourgeau-Chavez, L.L., K.P. Kowalski, M.L. Carlson Mazur, K.A. Scarbrough, R.B. Powell, C.N. Brooks, B. Huberty, L.K. Jenkins, E.C. Banda, D.M. Galbraith, Z.M. Laubach, K. Riordan. 2013. Mapping invasive *Phragmites Australis* in the coastal Great Lakes with ALOS PALSAR satellite imagery for Decision Support. *Journal of Great Lakes Research*, 39(1): 65-77.

Kerfoot, W. Charles, Foad Yousef, Sarah A. Green, Robert Regis, Robert Shuchman, Colin N. Brooks, Mike Sayers, Bruce Sabol, Mark Graves. 2012. Light detection and ranging (LiDAR) and multispectral studies of disturbed Lake Superior coastal environments. *Limnol. Oceanogr.* Vol. 57(3): 749-771.

Brooks, C. N., and Merenlender, A. M. 2001. Determining the pattern of oak woodland regeneration for a cleared watershed in northwest California: A necessary first step for restoration. *Restoration ecology*, 9(1), 1-12.

Professional Society Memberships:

American Society for Photogrammetry and Remote Sensing

International Association of Great Lakes Research

Transportation Research Board, Individual Affiliate