Collaborative Hydrological Research in the Clarksburg Maryland Special Protection Area

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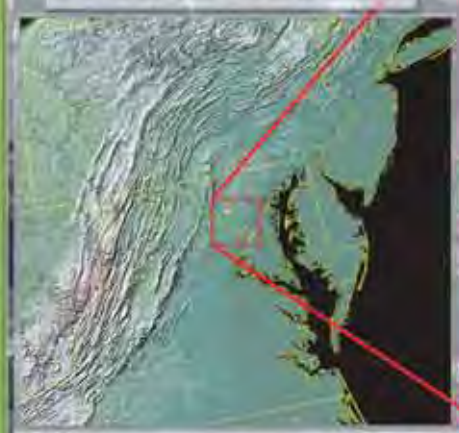
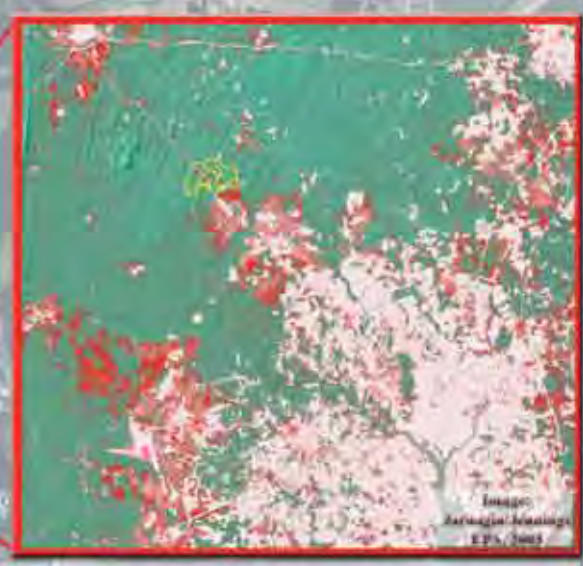
Research Collaborators: USEPA Landscape Ecology Branch, Reston, Virginia; USGS Water Resources Division, Baltimore, Maryland; Montgomery County Department of Environmental Protection (DEP), Rockville, Maryland; University of Maryland, Baltimore County Maryland, Department of Geography and Environmental Systems and The Center for Urban Environmental Research and Education (CUERE); University of Maryland, College Park Maryland; Environmental Systems Analysis, Inc., Annapolis Maryland and The Maryland-National Capital Park and Planning Commission (M-NCPPC), Silver Spring Maryland

Our Study Area is the Clarksburg Special Protection Area (CSPA)

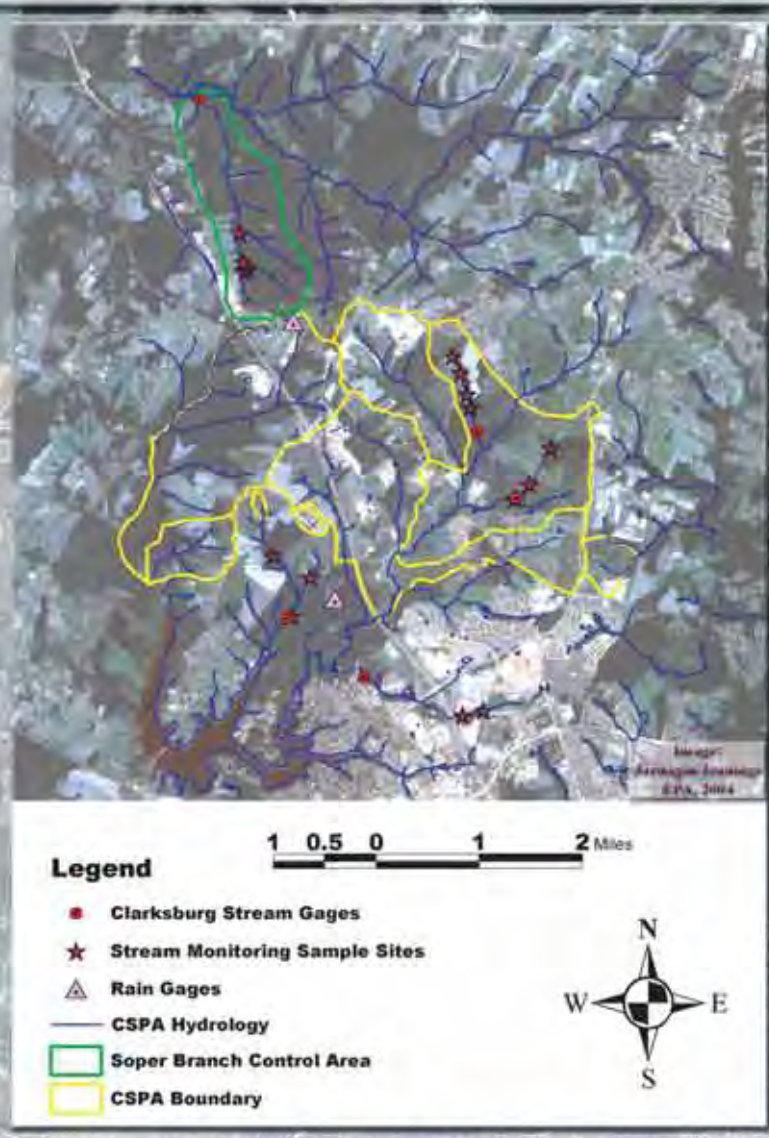




Satellite classification of urban land cover 1970s - 2000. The CSPA (yellow outline above) is at the outer edge of the current development extent of the core Washington DC metropolitan area. Image from EPA Science Forum 2003 poster: "Use of LIDAR to Monitor Stream Morphology Changes Due to Urbanization of a Suburban Watershed". S. Taylor Jarnagin and David B. Jennings, USEPA Landscape Ecology Branch, Reston VA 20192-0002.

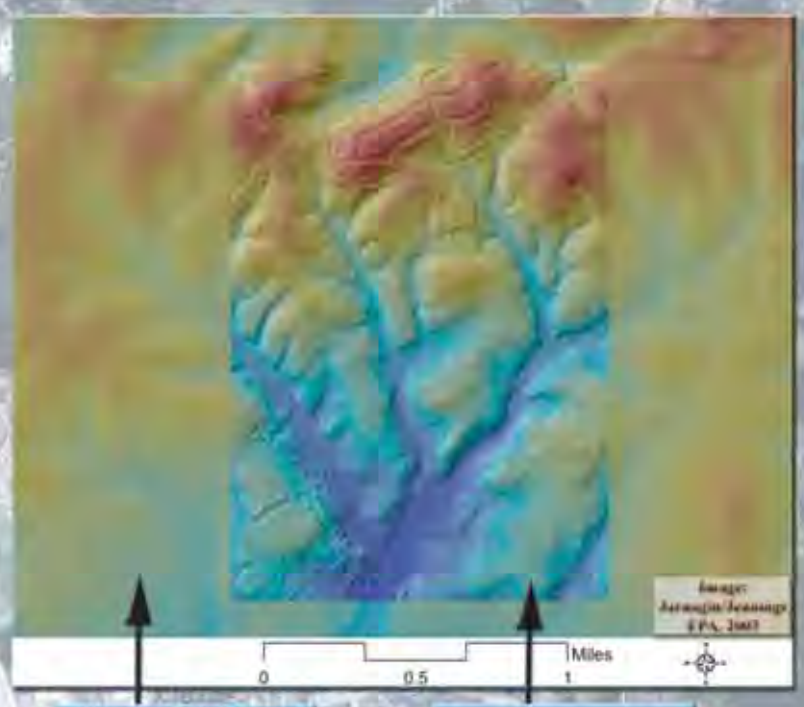
= 1970's NALC urban
= 1992 NLCD urban
= 2000 NLCD urban

Montgomery County DEP and Department of Permitting Services are mapping development and placement of Best Management Practice (BMP) stormwater control structures designed to mitigate the effects of urbanization within the CSPA



CSPA Streamflow and precipitation gages and monitoring locations. USGS WRD, University of Maryland College Park, Environmental Systems Analysis, M-NCPPC and Montgomery County DEP are collaborating on the collection of these data. The base map is an IKONOS 4-meter satellite image obtained in June 2002.

National Elevation Data (NED), 30-meter pixel spatial resolution, compared with sub-meter DEM derived from a LIght Detection And Ranging (LIDAR) overflight of the CSPA in December 2002. Both images have been processed to the same color elevation scale to graphically illustrate how much more topographical detail is available from the LIDAR imagery and how the mapping of anthropogenic development structures can be assisted with LIDAR. USEPAQ and UMBC are collaborating on the analysis of changes in topography and impervious surfaces associated with the CSPA development. Image from EPA Science Forum 2003 poster: "Use of LIDAR to Monitor Stream Morphology Changes Due to Urbanization of a Suburban Watershed". S. Taylor Jarnagin and David B. Jennings, USEPA Landscape Ecology Branch, Reston VA 20192-0002.



Poster prepared by S. Taylor Jarnagin, USEPA, May 2005

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