Chester River Integrated Strategic Plan (C.R.I.S.P.)

A Strategic Management Plan for Maryland's Middle Chester River Watershed

Group 6:

Jake McPherson, Joe Zona, Fran Jackson, Matt Ludington

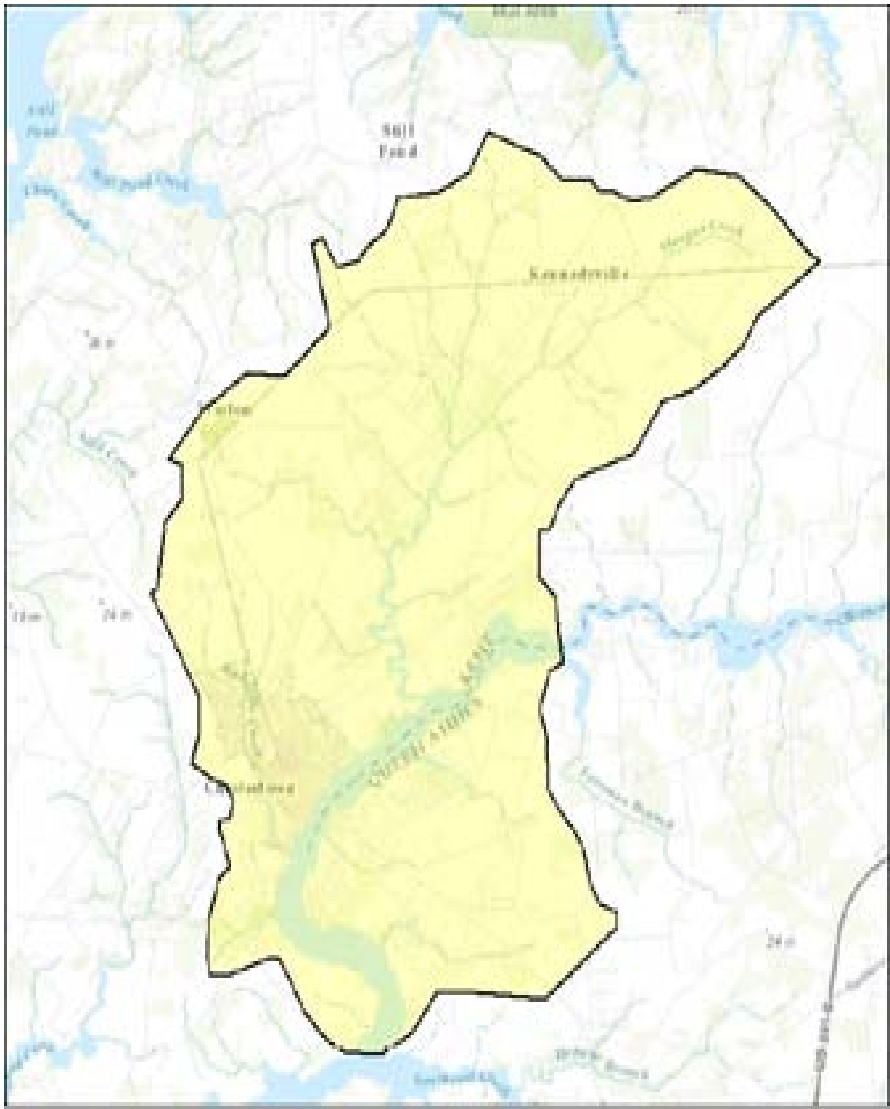
Mission Statement

The objective of the Chester River Integrated Strategic Plan (C.R.I.S.P.) is to bring the Middle Chester River, in eastern Maryland, under USGS Water Quality Targets for fishable and swimmable rivers by 2030, and to create a sustainable infrastructure for water quality upkeep.

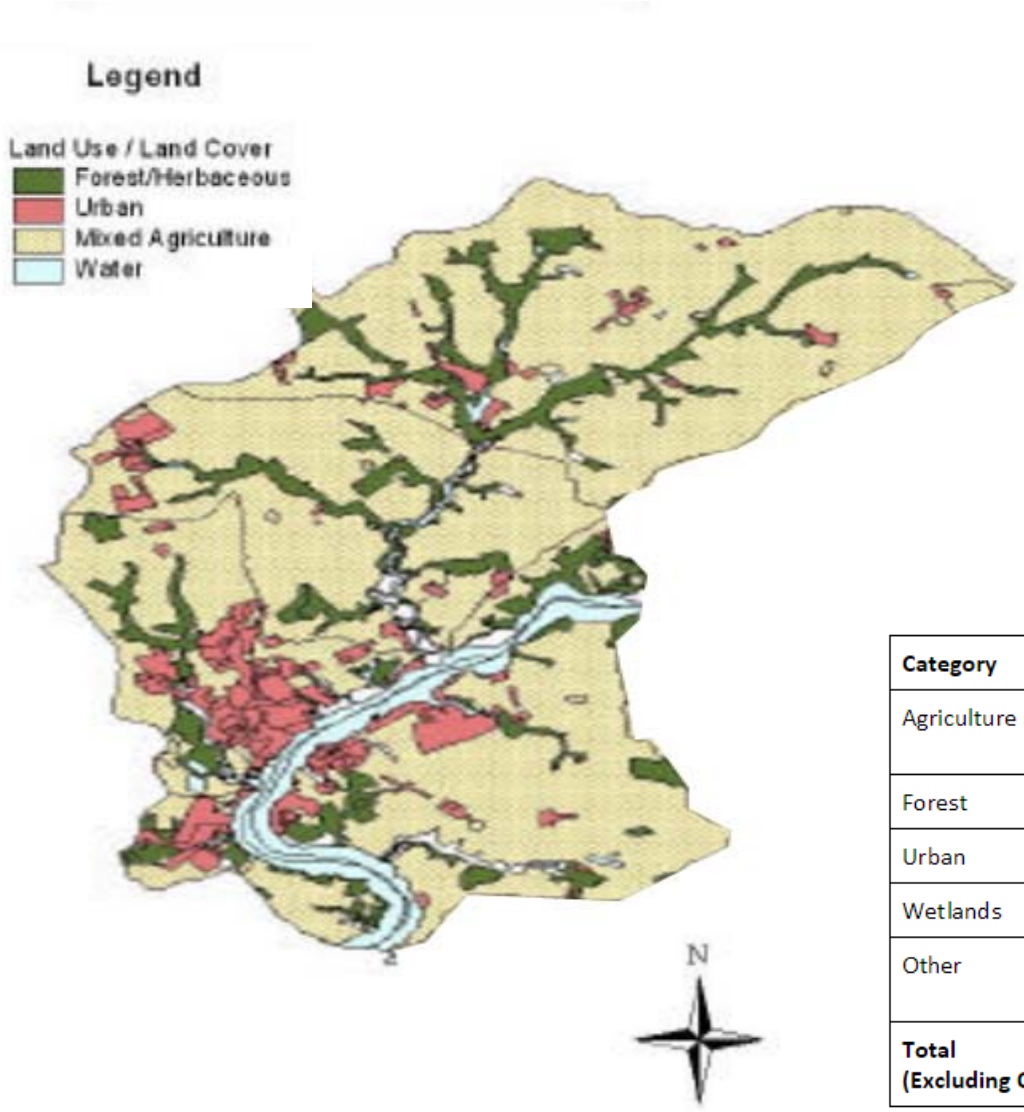
Image from Flickr of the Chester River at Sunset

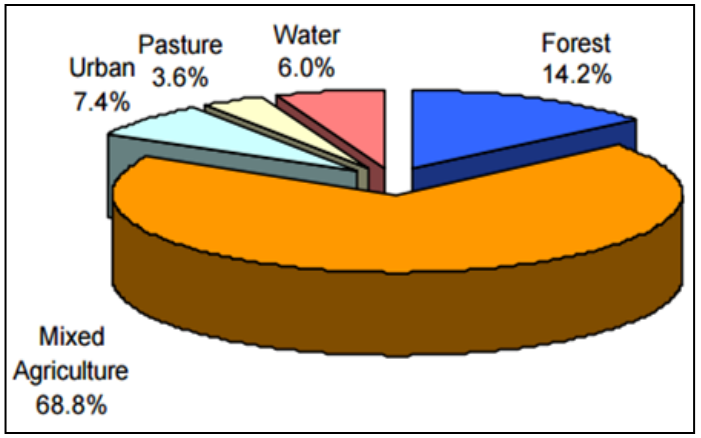
Watershed Characteristics

- 15.3 km (9.5 miles) section of the Chester River
- approximately 151 km^2 (37, 400 ac) of surrounding land area
- Kent and Queen Anne's Counties, Eastern Shore of MD
- Chester River meets the Chesapeake bay at its confluence near Eastern Neck National Wildlife Refuge



Land Use





Category	Description	1997 Acres
Agriculture	Cropland, Pasture, Ag Buildings	22,360
Forest	All woodlands and brush	4,272
Urban	All developed acres	2,461
Wetlands	Tidal and Emergent	506
Other	Gravel Pits & other bare ground	26
Total (Excluding Open Water)		**29,625**

Problem Matrix

Problem	Goals	Solution	Potential Players
Nutrient input (Phosphorus/Nitrogen), Dissolved Oxygen - Nonpoint Source Pollution	Lower to USGS target levels	Enforce TMDL levels, work with AG to bring about BMP	Conservation District, waterfund, NRCS, FSA, Chester River Assoc., Ducks Unlimited, TNC
Enterococcus (bacteria), Total Suspended Solids Levels - Point Source Pollutants	Lower to USGS target levels	Work toward TMDL levels, clean-up activities, watershed restoration. Identify and eliminate direct pollution sources (NPDES)	Conservation District, waterfund, NPDES
Lack of Monitoring	Establish ability to effectively monitor river, and actively interpret results	Lobby for USGS to install monitoring station in region, with consistent upload to their public access site	USGS, Washington College, UMD Ag Ext.,
Land Use Change	Create a watershed capable of adapting to changing land use	Improved natural barriers, legislation which takes watershed into account	Local community, lawmakers (Federal, State, Local)
Organization of Efforts	Create a centralized, organized effort	Establish a Waterfund and Water Manager	Local Conservation District

Point Source Pollution

Sources of Phosphorous and Nitrogen in the Middle Chester Catchment		
	Total Phosphorous	**Total Nitrogen**
Agriculture	71.7%	82.3%
Point Source	18.8%	6.7%
Urban	4.2%	3.8%
Pasture	3.1%	3%
Atmospheric Deposition	2.0%	3%
Forest	0.2%	1.2%
Source: Maryland Department of the Environment. 2006		

Pollution Solution

Agricultural Best Management Practices:

Soil and Water Conservation Practices

Manure and Feed Management

Continuing Education for Farmers

Example BMP

Land Use Changes

1997 Land Use

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Land Use Changes

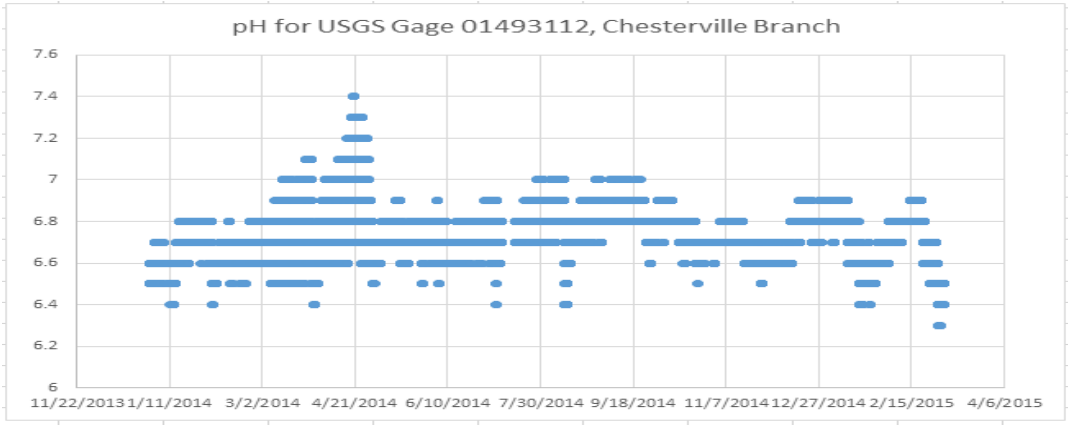
- Agriculture Strategies:
  - Reduce chemical runoff and nonpoint source pollution
  - Natural riparian buffers
    - plants to protect streams from nutrient pollution
  - Physical livestock barriers
    - prevent soil erosion and animal waste
- Urban Developed Strategies:
  - Reduce channelization or other flow impacts
  - Reduce impermeable surfaces

Land Use Changes

- Need cooperation from residents and legislators
  - Incentivise local farmers to enact safer farming practices
    - Could incentivise with subsidies for watershed friendly behavior
  - Seek assistance from state and federal lawmakers
    - To make urban areas more watershed friendly
      - less impervious surfaces
      - minimize wetland loss and soil erosion

Lack of Monitoring

- Need for reliable, consistent monitoring
- Petition for USGS gauges
- Local organization support of water monitoring
  - Educational events to train volunteers to take water readings
- Need for interpretation, pattern analysis
  - Help determine actions/efforts toward river restoration



Organization of Efforts

- Proposal 1: Hire Jerry Kauffman
- Create a waterfund
  - Hiring a “Riverkeeper”
  - Creating an organization to streamline efforts and funding, and maximize outcomes
- Simplify communications between multiple levels of government and local input

  - Smaller, individual groups can combine to accomplish larger goals under a waterfund