Valuation of the Ecosystem Services

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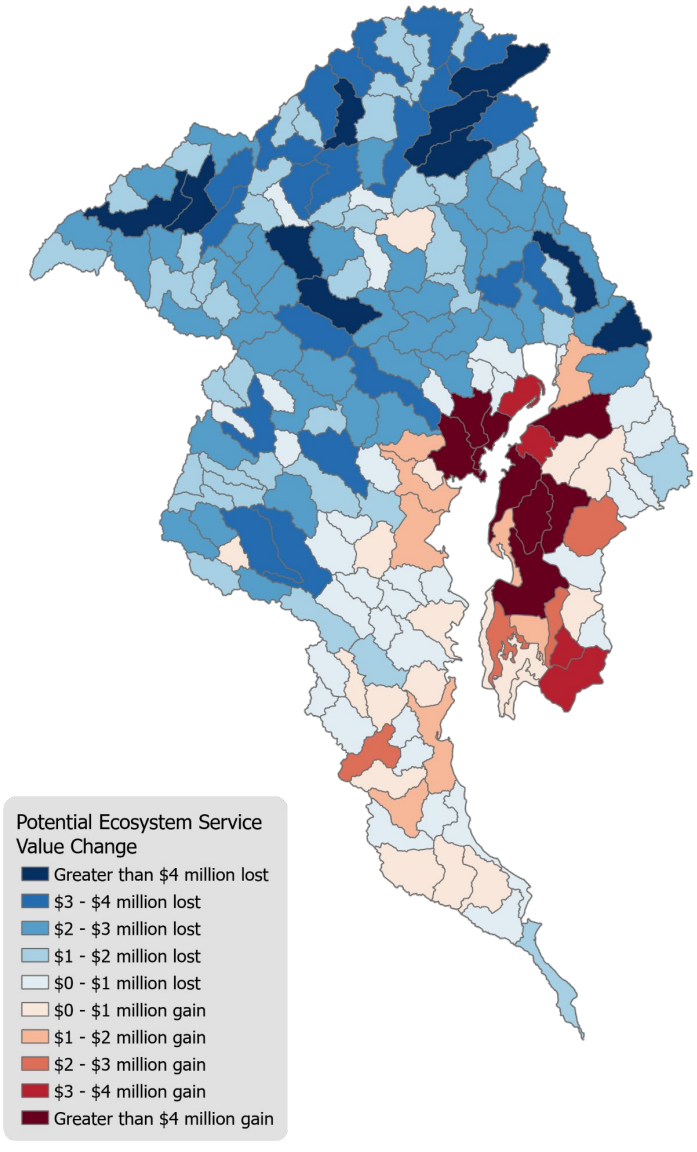
Valuing Ecosystem Services for Conservation Planning

The natural resources from the Chesapeake Bay Watershed create considerable economic value for the region. Besides the employment related to the watershed and the value created by economic activities such as recreation, hunting, fishing, agriculture, forest, and parks, the watershed also provides tremendous ecosystem service value to the related regions, including but not limited to the value of carbon sequestration, water and soil conservation (Kauffman, 2011). Quantifying the economic benefits of conservation can make planning processes more robust and improve cost-effective decision making. When focusing on the overall economic benefits of Chesapeake Bay conservation, Phillips (2014) concluded that the total economic benefit of the Chesapeake Clean Water Blueprint is estimated at $22.5 billion (in 2013 dollars) per year. By quantifying the possible monetary benefits of the ecosystem services, we can quantify the economic feasibility of conservation and determine the hot spot for achieving the conservation goal.



Ecosystem Service Value in the Study Area

With implementation of the land conservation Best Management Practices (BMPs) combined with most possible development patterns, the total value of the ecosystem service provided by our study area will experience a $202 million decrease per year, or 1.63%, over the 2016 baseline. This decrease is largely due to the decrease in area and corresponding ecosystem service value of forest and farmland.

Spatial Trends for Ecosystem Service Value change

The total ecosystem service value tends to increase near the tidal Bay, and the inland areas will have a higher possibility to experience a potential loss. The HUC 12 watersheds that have the highest potential increase in ecosystem service value share similar changes in land uses. The conservation planning and development trends in those places result in a high increase in the area of wetland.

References

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