CHOICES
a publication of AAEA Agricultural & Applied Economics Association
The Magazine of Food, Farm and Resource Issues

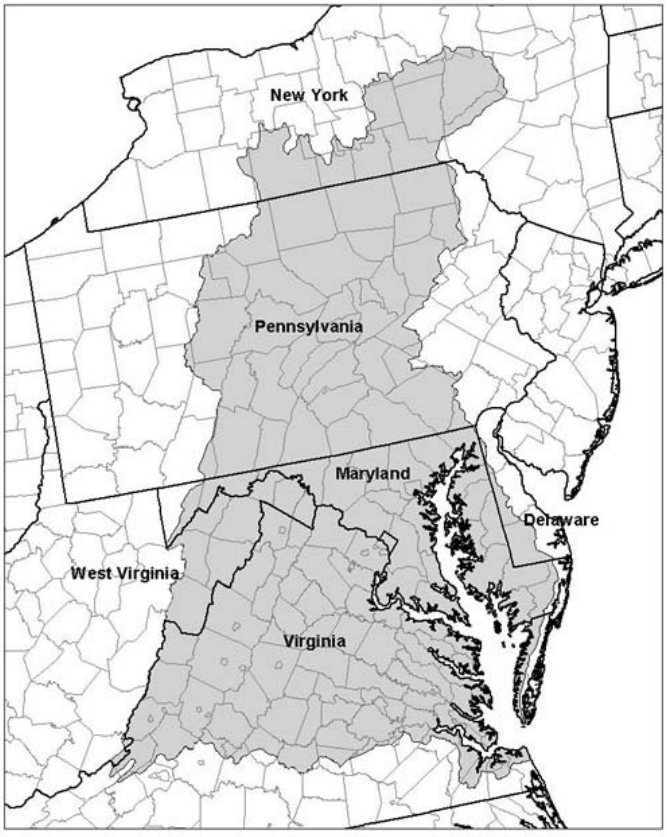
3rd Quarter 2011 | 26(3)

THEME OVERVIEW: INNOVATING POLICY FOR CHESAPEAKE BAY RESTORATION

Marc Ribaudo and James Shortle
JEL Classification: Q58
Keywords: Nonpoint Source Pollution, Total Maximum Daily Load (TMDL), Best Management Practice, Conservation Program, Policy Instruments

The Chesapeake Bay is North America's largest and most biologically diverse estuary. It has provided a rich bounty of crabs, shellfish, and fish, and high quality recreational opportunities. However, the Bay living systems have been increasingly stressed over time by the pressures of growing populations—there are over 20 million people in the 166,534 km^2 mile watershed—industrial pollution, atmospheric deposition of air pollutants, and conversion of forests to farms—especially animal intensive farming—and to urban development. Significant reductions in polluting discharges from sewage treatment plants, factories, and other point sources of pollution have been achieved in the Bay watershed since the 1970s. But these reductions have not been enough to meet established water quality goals because point sources are only part of the problem. Nonpoint sources, especially agricultural ones, are a major remaining source of the nutrients and sediments degrading the Bay.

Figure 1: Chesapeake Bay Watershed



The history of efforts to restore the ecosystem of the Chesapeake Bay is emblematic of the failure to solve the agricultural nonpoint source (NPS) problem. The Bay has been a focal point of federal and state initiatives to reduce nutrient and sediment pollution from agriculture and other sources for more than thirty years. Beginning in 1983, there have been several agreements between the U.S. Environmental Protection Agency (EPA), the Governors of Maryland, Pennsylvania, Virginia, West Virginia, Delaware, and New York, and the Mayor of the District of Columbia that established the Chesapeake Bay Program, set nutrient and sediment reduction goals, and developed strategies for nutrient and sediment reduction. U.S. Department of Agriculture (USDA) conservation programs have made large public investments in improving the management of agricultural resources and reducing agriculture's negative impact on environmental quality. Additional investments have come from EPA programs—208 and 319 funds—and from the watershed states. Yet, the problems remain—largely due to limited success in implementing policies that effectively reduce environmental stress from agricultural nonpoint sources of pollution. The fact that much of the watershed lies in areas that do not benefit directly from a cleaner Bay may have played a role in this.

The limited progress in achieving water quality goals has led the EPA to establish a Total Maximum Daily Load (TMDL) for the Bay. The TMDL, the largest ever developed by the EPA, calls for reductions in nitrogen (25%), phosphorus (24%) and sediment (20%) in the Bay watershed. It requires states in the watershed to develop Watershed Implementation Plans (WIPs) for achieving target reductions from agriculture and other sources. Although there are some exceptions, the WIPs largely rely on policy approaches traditionally used in federal and state programs.

The articles in this theme critically explore the suite of federal and state polices needed to reduce water pollution in the Chesapeake Bay. They examine shortcomings of existing policy approaches and highlight opportunities for correcting those deficiencies from economic, political, legal, ecological, and policy perspectives. The article by Hershner provides some perspective on the challenges and uncertainties of improving the quality of such a large and complex ecosystem, and how these might influence policy choices. Ribaudo, Shortle, Blandford, and Horan review the shortcomings of current policy approaches to address agricultural NPS pollution and suggest some "tweaks" that might provide more effective pollution reductions. The use of regulation as a policy tool is further explored by Perez. The article reviews the use of regulation to address the pfiesteria outbreak of the 1990's, and the lessons learned that could be applied to the current policy. Another policy approach, payment for ecosystem services (PES), is evaluated by Shabman, Rose, and Stephenson. That article argues that the Bay may not be suitable for a traditional PES approach, and suggests an alternative based on PES principals that may have a better chance for success. An area that has not been much explored in the literature is the role politics plays in establishing goals and selecting policy instruments. Kwasnica tackles this subject in a paper that examines how the political process in a representative democracy and federal system of governance might impact the allocation of load reductions and influence the success of the Bay policy.

Marc Ribaudo (mribaudo@ers.usda.gov) is Senior Economist at the Economic Research Service, Washington, D.C. James Shortle (jshortle@psu.edu) is Distinguished Professor in the Department of Agricultural Economics and Rural Sociology, Penn State University, State College, Pennsylvania. *The papers were presented at the conference "Innovating Policy for Chesapeake Bay Restoration" sponsored by the Farm Foundation, the Penn State Environment and Natural Resources Institute, the Office of the Chief Economist of the USDA, Virginia Institute of Marine Sciences, and the Pennsylvania Water Resources Research Center. The views expressed are those of the authors and do not necessarily reflect those of the Economic Research Service or the U.S. Department of Agriculture.*

The views expressed are those of the authors and do not necessarily reflect the positions of the Federal Reserve Bank of Kansas City, the Federal Reserve System, or Purdue University.