



Cleaner Air, Cleaner Water

One Can Lead to the Other in the Chesapeake Bay

Save The Bay. For years, bumper stickers have carried the simple, urgent slogan on the back ends of cars in states that surround the Chesapeake. And for years governments in these jurisdictions have been responding to the call to do something about deteriorating water quality in the 200-mile-long arm of the Atlantic. Of course the task is far from simple. Tracking pollutants to their many sources and then finding ways to combat them is a major undertaking.

Merely identifying the sources of pollution has produced surprises. Agricultural runoff and municipal water treatment were fingered long ago as major culprits in the nitrogen buildup that chokes out aquatic life in the Bay. Only quite recently, however, did researchers discover that airborne nitrogen-oxide emissions—from utilities that generate electricity and from cars and trucks on the highways—can do the same kind of damage.

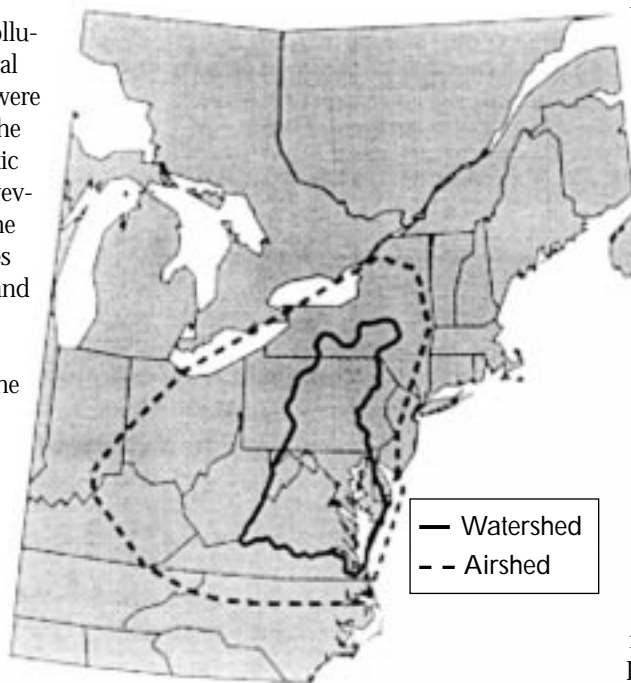
Now that researchers know about the connection between the Chesapeake region's air and water, however, they have begun to take a cross-media approach, which not only adds to the complications of analysis but improves the environmental outcome and reduces the price paid to achieve it. Analysts are thus on the lookout for "two-fers"—like a law that mandates cleaner air but whose implementation leads also to cleaner water.

RFF has completed a study this fall that substantiates just such an instance of ancillary benefits and the news is good for the Chesapeake Bay. RFF estimates that the huge body of water will benefit substantially from the large reduction in nitrogen-oxide emissions from utilities and other large sources that EPA has proposed for the Eastern United States under the Clean Air Act, plus expected reductions from mobile sources.

"The Bay obtains a bonus," Senior Fellow Alan J. Krupnick says of EPA's latest

effort to curb NOx emissions because they are a precursor to smog. EPA's more stringent emissions standards would reduce airborne nitrogen compounds (nitrates) that reach the Bay by at least 26 percent, the RFF study shows. But RFF projected even larger reductions if the EPA program were structured differently.

Program design matters, in other words, and is a "key message" of the analysis, Krupnick emphasizes. The Chesapeake



Chesapeake Bay Watershed and Airshed

Nitrates from the airshed enter the Bay mostly as deposits in the watershed that run off into the Bay.

Bay community and others with a stake in NOx emissions reductions should "not be indifferent," he says, to the features of a NOx trading program.

The RFF team estimated that the cost of complying with the new EPA program would be 40 percent cheaper than the cost all sources incur now to meet their obligations under the Clean Air Act. But RFF projected even larger savings if EPA extended the trading program to all the

different sources of NOx emissions—not just utilities. Savings could be achieved by shifting some of the burden of NOx abatement away from, say, electric utilities, and onto automobiles. At least as the RFF study turned out, the lower cost would be accompanied by fewer nitrate loadings to the Bay. The model showed a reduction in nitrates of more than 10 percent over what they would have been if only utilities could play the trading game.

Even greater cost savings (half the cost of command and control) could be had from an ozone exposure reduction program—one that targeted NOx emissions reductions geographically, concentrating cleanup in the Midwest and New York. But in that case the Bay would fare worse than under command and control. Thus not every tack that EPA might take to reduce ozone would benefit the Chesapeake as much as any other, nor do cost savings and NOx emissions reductions always go hand in hand. The crucial calculation for the Bay's health hinges on where the NOx is reduced.

These findings are gleaned from the first of a two-part analysis on which RFF researchers are working with colleagues Paul Guthrie and Brian Morton. The study is sponsored by EPA's Office of Policy, Planning, and Evaluation and the agency's Chesapeake Bay Program.



To download a copy of the report "The Chesapeake Bay and the Control of NOx Emissions: A Policy Analysis (RFF Discussion Paper 98-46) access http://www.rff.org/disc_papers/PDF_files/9846.pdf.

Copies may also be ordered by mail; see page 18.