The EPA's involvement in Florida's new water pollution standards is unsound.

How Not to Improve Surface Water Quality

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The U.S. Environmental Protection Agency has proposed standards for "nutrient" water pollution in Florida — pollution that nourishes some parts of an ecosystem, which then can overwhelm other parts. Unfortunately, the EPA proposal relies on command-and-control mechanisms rather than market approaches to limiting surface water pollution. In addition, in its proposed rule, the agency's approach to cost-effectiveness analysis will discourage other states from implementing water quality regulations on their own. This is a poor approach to improving the health of U.S. waters.

Nutrient pollution principally consists of dissolved nitrogen and phosphorus in various forms. While both of these occur naturally, they are also present due to human activity and can be found, for example, in industrial wastewater, water from waste treatment plants, and storm water runoff. These nutrient pollutants may have adverse health effects in high concentrations. The more immediate concern, however, is the nutrients' ability to disrupt an ecosystem by encouraging the growth of algae blooms that rob fish and other life of dissolved oxygen. Complicating matters, some ecosystems seem to be more sensitive than others to increased nutrient levels.

Florida's current "narrative" standard for these pollutants does not set a specific numeric limit on nutrient levels, but instead mandates that nutrient levels cannot exceed levels that result in an imbalance in the natural population of flora and fauna. In response to litigation and an expansion of its scope of activities under the Clean Water Act starting in the previous presidential administration, the EPA has proposed numeric (quantitative) limits on the nitrogen and phosphorus in Florida's lakes and streams. It is expected that Florida is the first of many states that will have numeric nutrient limits imposed on them.

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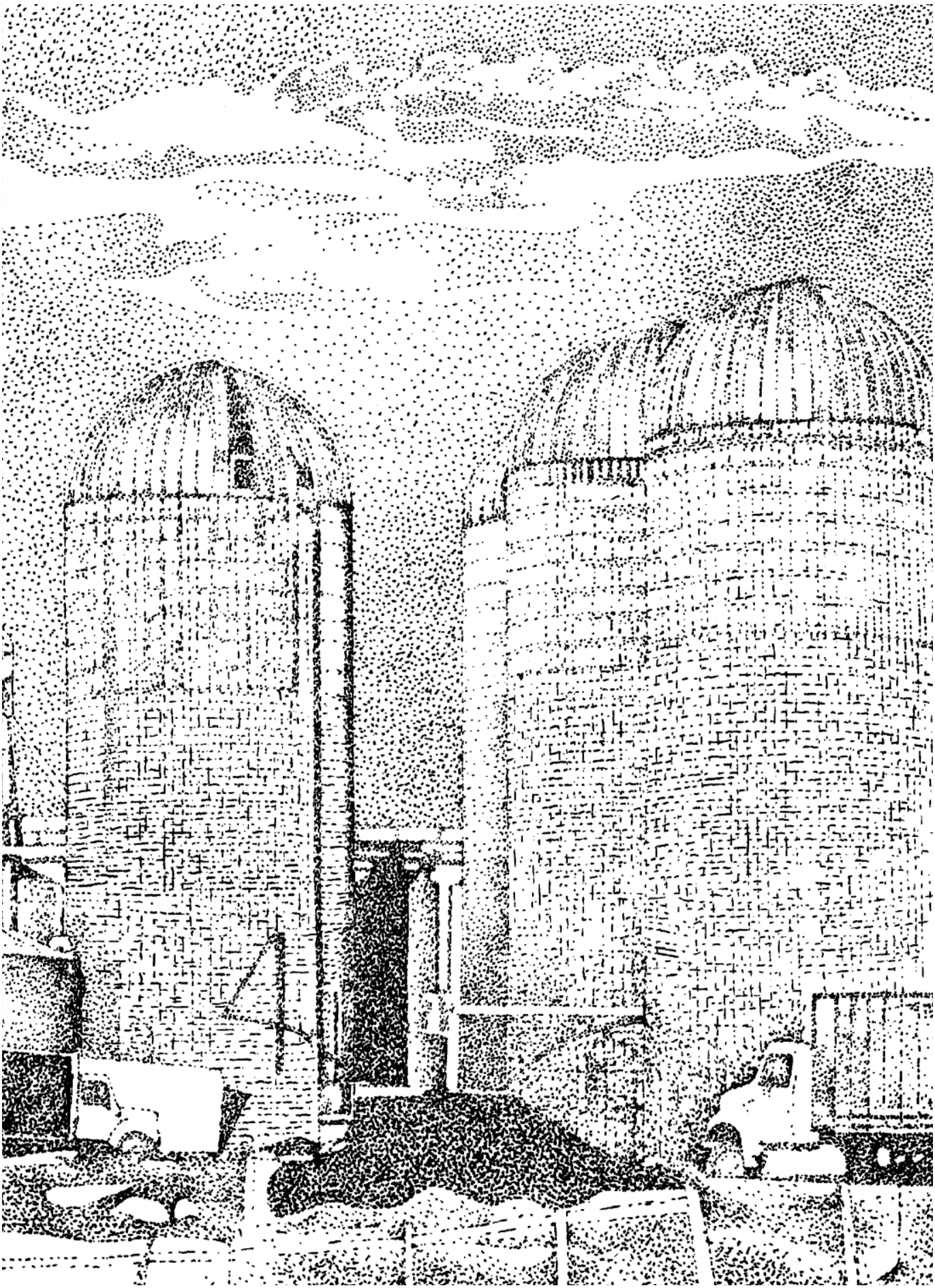
Until now, the EPA's focus has been on setting numeric limits directly on point-source nutrient pollution — that is, pollution from specific large emitters. Under the proposed numeric criteria, nonpoint sources — the aggregation of many diffuse pollution sources in a given area — would also be affected because limits would be set on the level of nutrients in a body of water rather than the emissions from a particular source.

While there is nothing wrong, in principle, with setting numeric limits, the EPA's approach to Florida has a number of flaws, of which two stand out: First, the EPA decided not to use market-based approaches in its mandates, even though market-based programs have been used successfully to lower pollution. As a result, the potential cost savings and efficiencies from a market-based approach are lost. Second and related, the EPA is avoiding performing a proper cost-effectiveness analysis because of apparent weaknesses in the statutory requirements, including requirements in the Unfunded Mandates Reform Act of 1995. As a result of the EPA's skirting of the act's requirements, states will be discouraged from implementing stricter water pollution regulations on their own.

BACKGROUND

Under the Clean Water Act, the EPA regulates both point and nonpoint sources for surface water pollutants. For point-source pollution, e.g., industrial plants or sewage treatment plants, the EPA has a permitting role. It traditionally has fulfilled this responsibility by issuing permits to polluters under the National Pollutant Discharge Elimination System program. For nonpoint-source pollution, e.g., agricultural runoff, the Clean Water Act requires states to identify target surface water quality standards (subject to EPA approval) and to manage nonpoint-source pollution to achieve those standards. The agency may set alternative surface water quality standards, but only after determining that a state's standards are inadequate. Until 2009, the EPA did not develop alternative standards for states.



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Critical to the success of this approach, of course, is that whatever standards are developed must then be enforced. The EPA has relied heavily on states to ensure compliance with surface water quality standards, even when states may lack the resources or will to do so. Lapses in state-level regulation and enforcement have led the EPA to conclude that it needs to be more active in ensuring compliance with Clean Water Act requirements for both point-source pollution and for surface runoff. Thus, while in the past the EPA's attention focused primarily on issuing permits to point-source polluters, more recently the agency has extended the scope of its activities under the law. In tandem with the EPA's renewed focus on Clean Water Act compliance, the agency is rewriting state surface water quality standards, beginning with Florida.

The protocol for setting state-level water quality standards includes identifying designated uses for surface waters and setting goals for water quality standards consistent with those designated uses. States are tasked with monitoring compliance with their water quality standards. If the EPA determines that a state's standards are inadequate, it must issue alternative standards for the state.

Surface water quality regulations may be either qualitative or quantitative (subject to acceptance by the EPA). Each approach has strengths and weaknesses:

- Narrative standards are flexible and focus on end-use suitability. However, monitoring and ensuring compliance can be complicated and subject to interpretation.
- Numeric standards are less flexible and may result in inappropriate outcomes, but monitoring and ensuring compliance is much more straightforward. In this regard, the EPA appears to have adopted a position that even if the numeric standard is not achieved, if polluters have installed "best available control technology," they will be presumed to be in compliance.

LEAPFROGGING FLORIDA

A few years ago, Florida policymakers decided to change from their narrative standard to numeric nutrient standards. They commenced gathering and evaluating scientifically reliable data to support development of those standards, with a schedule for completion by the end of 2010. In spite of Florida's initiative to develop its own numeric standards, on January 14, 2009 — before the state's Department of Environmental Protection had completed its work — the EPA elected to step in and impose its own numeric standards. The agency did so even as it acknowledged that Florida's work was not yet completed and that the state already had implemented some of the most progressive nutrient management strategies in the nation. Ironically, the EPA's actions have likely delayed the implementation of stricter water standards in Florida.

Many criticisms can be leveled against the EPA's intervention in Florida, including the uncertainty about whether its numeric targets can ever be achieved in Florida's surface waters. Beyond this, we want to focus on two additional problems.

Ignoring market-based approaches The EPA's Florida mandates employ an inefficient command-and-control approach to compliance. By only considering specific technologies and methodologies, this approach fails to evaluate alternatives, including incentive-based mechanisms that could result in more cost-effective compliance. While incentive approaches such as cap-and-trade are common for reducing point-source pollutants such as sulfur and nitrogen air emissions from power plants, they are less common for nonpoint-source pollution. Nevertheless, not only is the economic theory of such methods for nonpoint-source pollution well-established, but such programs have been demonstrated in practice to be effective in numerous programs specific to water, including those implementing the EPA's 2003 Water Quality Trading Policy. A recent survey counted 57 water quality trading programs worldwide. Of those, all but eight are in the United States. Many different market structures can be found in these programs, including bilateral trading, sole-source offsets, clearinghouse mechanisms, and exchange markets.

Whatever the trading regime, the basic process is as follows with respect to nonpoint sources: A baseline is established for nonpoint sources. Against this baseline, trading credits are generated by reductions in pollution from nonpoint sources. Because of their diffuse nature, nonpoint sources are typically not measured directly (though there are trading programs that do so); rather, nutrient levels are based on either preset amounts from the adoption of different management practices or calculated reductions based on a combination of site-specific characteristics and the management practice adopted. For instance, in the Grasslands Bypass Project, the release of selenium from nonpoint sources has been successfully reduced through an incentive program that includes the ability for water districts with higher discharge reduction

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costs to pay water districts with lower discharge reduction costs. This "tradeable loads" program has resulted in the achievement of target reductions at a lower cost. Even though the EPA has in the past participated in setting up the Grasslands Bypass Project and other trading programs — including providing funding for the establishment of 16 of them — it has now apparently decided to ignore its previous published policy and success in this area. As a result of the EPA's command-and-control approach to Florida, the cost of compliance will be higher and the amount of pollution reduction achievable for a given level of cost will be lower.

Not performing cost-effectiveness analysis While the EPA did review estimated costs and benefits of its proposed standards, it failed to evaluate whether its regulations are actually a cost-effective approach to achieve its regulatory goals. Under the Unfunded Mandates Reform Act, if the incremental costs of compliance with a new regulation exceed a threshold of $100 million per year per state, cost-effectiveness requirements for proposed regulations are triggered. The EPA dodges the question of whether its proposed numeric nutrient standards for Florida regulations are cost-effective simply by assuming that the Unfunded Mandates Reform Act is not applicable.

For the purposes of complying with the act, the agency considers that its regulations (and their associated costs) are incremental to the Florida Department of Environmental Protection's proposed numeric standards. The EPA estimates that the cost of meeting Florida's proposed standards is between $102 million and $130 million. The EPA then estimates that its proposed requirements, if added *on top of* Florida's proposed requirements, would cost an additional $4.7 million to $10.1 million per year. Thus, the EPA seems to have determined that it is not required to use or even to identify the most cost-effective approach to achieve compliance with the Clean Water Act in Florida, even though the cost of its proposal is $106.7 million to $140.1 million.

It does seem sensible in some situations to take an incremental approach to looking at the costs of proposed regulation. However, for incremental costs to be based *not* on enacted regulations, but rather on *contemplated regulations*, would likely have a perverse and stifling effect on state initiatives to regulate pollution.

This incremental approach should make any state government cautious in considering action to regulate pollutants that might also be subject to EPA action. The agency, for instance, may impose wholly new regulations that are more stringent than those contemplated by the state, but under its apparent approach here, avoid considering what the most cost-effective regulations might be on the basis that incremental costs are less that $100 million. It is possible to imagine the EPA could even adopt regulations serially so as to avoid the $100 million threshold. As a result, states will face disincentives to regulate in the form of costs imposed by the EPA's incremental cost–only approach. That is, based on the agency's proposal for Florida, only if states *fail* to implement regulations will the EPA have to include the full costs of its proposals when it is determining whether to employ cost-effective regulations. Moreover, the EPA's incremental analysis is not incremental just to *existing* state regulations, but also to *contemplated* state regulations. As a result, states are not only discouraged from enacting pollution regulation, they are discouraged from even thinking about it.

It may be that the EPA's approach is within the bounds of the law, but it surely does not make for a sound approach to developing public policy. The conclusion that because the agency is not required to consider cost-effectiveness, it will not, creates an unfortunate situation for a number of reasons (including the obvious one that there likely are more cost-effective approaches to achieve a result at least as good).

Furthermore, it is not clear that the EPA's assertion that costs of compliance with its regulations do not cross the $100 million threshold can withstand scrutiny. Granted, the Unfunded Mandates Reform Act only requires consideration of direct costs, and so the EPA does not factor in the indirect costs of compliance in terms of the economic impacts on prices, productivity, employment, and capital investment. As such, even assuming that it is appropriate for the EPA to consider only costs incremental to those of complying with Florida's own regulations, the EPA's exclusion of monitoring costs and indirect costs from its cost-benefit analysis, at a minimum, grossly underestimates cost effects. One can imagine a situation in which the EPA could hypothetically impose regulations that cause little or no direct costs but that would result in a shutdown of entire industries. For this reason, the agency should rework its cost-benefit analysis to account for both direct and indirect costs of its numeric nutrient standards.

CONCLUSION

In its proposed rule on nutrient pollution in Florida, the EPA is setting a poor precedent for the rest of the country. The neglect of market-based methods means higher costs to achieve less, even though water quality trading programs are established both in theory and practice, and the EPA has participated in the design of some of those programs. Further, the EPA's refusal to consider the most cost-effective methods for implementing the regulations will result in reluctance at the state level to tighten regulations, for fear that the EPA will take an incremental approach to justifying the lack of the cost-effectiveness analysis. R

Readings

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