

**A SYMPHONIC APPROACH TO WATER MANAGEMENT:
THE QUEST FOR NEW MODELS OF
WATERSHED GOVERNANCE**

G. TRACY MEHAN, III*

I.	PROGRESS TO DATE IN CLEANING UP THE WATERS OF THE UNITED STATES	2
II.	REACHING THE APOGEE OF WATER QUALITY?.....	7
III.	THE SYMPHONIC APPROACH.....	13
IV.	MODELS OF WATERSHED GOVERNANCE	17
	A. <i>The SIP Model</i>	18
	B. <i>Current Statutory Models</i>	20
	C. <i>The Interstate Compact Model</i>	23
V.	COLLABORATION AS MODEL AND THEME: THE ROLE OF UTILITIES	25
	A. <i>New York City Filtration Avoidance</i>	26
	B. <i>Milwaukee’s “Sweetwater Trust”</i>	27
VI.	CONDUCTING A WATERSHED SYMPHONY.....	31

Thirty-nine years after the passage of America’s Clean Water Act, the country still faces a monumental stumbling block in its quest “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”¹ This challenge is not that of managing water resources, as important as that may be. Rather, it is that of “managing ourselves,” to adopt a phrase from Richard N. L. Andrews’s history of American environmental policy.²

As Professor Andrews explains, “environmental issues are issues not just of science or economics but of governance. They concern problems that are not being solved by science and technology alone, nor by the ‘invisible hand’ of markets or individual actions, and for which advocates therefore seek collective solutions through government action.”³

For those who do prefer market-based approaches, be they the work of hands visible or invisible, Andrews is most certainly correct when he notes that while government action clearly compre-

* Principal, The Cadmus Group, Inc. (www.cadmusgroup.com); former Assistant Administrator for Water, U.S. Environmental Protection Agency, 2001-2003; and Adjunct Faculty, George Mason University School of Law. This article is adapted from the spring 2010 Distinguished Lecture hosted by the *Journal of Land Use and Environmental Law* at Florida State University College of Law.

1. 33 U.S.C. §1251(a) (2006).
 2. RICHARD N. L. ANDREWS, *MANAGING THE ENVIRONMENT, MANAGING OURSELVES: A HISTORY OF AMERICAN ENVIRONMENTAL POLICY* (1999).
 3. *Id.* at x.

hends regulations, public investments, scientific research, technical assistance, and the like, “[g]overnment policies themselves, moreover, are often causes of environmental problems as well as solutions to them.”⁴ *Quis custodiet ipsos custodes?*⁵

Issues of governance, therefore, involve the governors as much as the governed. To appreciate this last point, consider the negative environmental impacts caused by government subsidies for water development, agriculture, below-cost grazing, below-cost timber sales, fisheries exploitation, ethanol, and, of great concern here in Florida, sugar tariffs, which have probably contributed as much to the diminishment of the Everglades as any other federal policy.

This Article will describe why, at this juncture in our country’s environmental history, particularly at this moment in time under the legal regime established by the Clean Water Act, water managers are forced to grapple with issues of watershed governance.

It will also explain why the water sector has shifted from an almost exclusive focus on pipes in the water to a broader vision of watershed management, at the landscape scale, which brings with it the imperative to embrace a symphonic approach⁶ to water management and to explore new models of watershed governance scaled to basins of varying size and social composition.

I. PROGRESS TO DATE IN CLEANING UP THE WATERS OF THE UNITED STATES

Before discussing the present challenge and predicament, it is useful to recount our nation’s tremendous progress in cleaning up its waters. Americans have achieved great environmental success in the past several decades, which should inspire hope that such success can be emulated in the future.

One traditional baseline for assessing progress to date is the famous passage on Bubbly Creek that appears in Upton Sinclair’s muckraking novel, *The Jungle*, a scathing critique of social condi-

4. *Id.*

5. “[W]ho will guard the guards themselves” or, for our purposes, who will regulate the regulators? The quote is from Juvenal’s *Satires*, in which he may have been more concerned with the problem of hiring guards to prevent infidelity among women whose husbands were out of town. See EUGENE EHRLICH, *AMO, AMAS, AMAT AND MORE: HOW TO USE LATIN TO YOUR OWN ADVANTAGE AND TO THE ASTONISHMENT OF OTHERS* 239 (1985).

6. My thoughts on this idea have evolved from a broader concern with ecosystem management (see G. Tracy Mehan, III, *Ecosystem Management in the Great Lakes Basin*, 21 *FISHERIES* 12 (1996)) to some preliminary ideas over the years. See G. Tracy Mehan, III, Luncheon Address at the Southern Lake Michigan Regional Water Supply Consortium: A Symphonic Approach to Watershed Management (Feb. 16, 2005); G. Tracy Mehan, III, *Working Together Holistically: A Symphonic Approach to Watershed Management*, *WATER RESOURCES IMPACT*, Nov. 2006, at 10, 10-11.

tions in the stockyards and packing houses of late-nineteenth century Chicago. Allowing for hyperbole, artistic license, and some questionable water chemistry, the book offers a vivid picture of just how bad things became in a young America single-mindedly building its economic base:

"Bubbly Creek" is an arm of the Chicago River, and forms the southern boundary of the yards; all the drainage of the square mile of packing-houses empties into it, so that it is really a great open sewer a hundred or two feet wide. One long arm of it is blind, and the filth stays there forever and a day. The grease and chemicals that are poured into it undergo all sorts of strange transformations, which are the cause of its name; it is constantly in motion, as if huge fish were feeding in it, or great leviathans disporting themselves in its depths. Bubbles of carbonic acid gas will rise to the surface and burst, and make rings two or three feet wide. Here and there the grease and filth have caked solid, and the creek looks like a bed of lava; chickens walk about on it, feeding, and many times an unwary stranger has started to stroll across, and vanished temporarily. The packers used to leave the creek that way, till every now and then the surface would catch on fire and burn furiously, and the fire department would have to come and put it out. Once, however, an ingenious stranger came and started to gather this filth in scows, to make lard out of; then the packers took the cue, and got out an injunction to stop him, and afterwards gathered it themselves. The banks of "Bubbly Creek" are plastered thick with hairs, and this also the packers gather and clean.⁷

These conditions no longer exist in Chicago, even on Bubbly Creek. Today you might even see a four-pound coho salmon in the Creek or consider buying a million-dollar home nearby.⁸

Chicago eventually started cleaning up,⁹ as did the rest of the country long before the passage of the Clean Water Act in 1972, which accelerated the restoration of the waters of the United States. Considering either pounds of pollution abated, stream

7. UPTON SINCLAIR, *THE JUNGLE* 92 (Heritage Press 1965) (1906).

8. Alby Gallun, *Flushing Out Bubbly Creek: Pricey New Homes Spur Cleanup of Dirty Bridgeport Waterway*, CHI. BUS., July 26, 2004.

9. Actually, Chicago changed the directions of its rivers, reversing the flow. Instead of flowing into Lake Michigan where waste and disease accumulated, the city sent the waste heading in the opposite direction, down the Illinois and Mississippi Rivers all the way to the Gulf of Mexico. That was state-of-the-art wastewater treatment in those days.

segments improved, or fisheries restored, America has made tremendous progress over the past decades. Former EPA administrator William Ruckelshaus has observed that, even if all of our waters are not swimmable or fishable, at least they are not flammable.¹⁰

In truth, America has done considerably better than the former Administrator's self-deprecating humor would indicate. Focusing on Detroit, Michigan, another community on the Great Lakes, hardly a Garden of Eden, there are more signs of significant environmental improvement over the past three and a half decades. In 2006, lake whitefish—the number-one commercial fish in the Great Lakes and a key indicator of water quality—were discovered spawning in the Detroit River in Michigan—the birthplace of the American auto industry—for the first time since 1916.¹¹ This fishery was lost to pollution from oil, phosphorus, mercury, and organochlorines over many years.¹² Since 1972, the year that the U.S. Clean Water Act (CWA) became law, pollution levels of some of these contaminants are down 95 to 98%.¹³ Mercury contamination in fish tissue is down 70%, and PCB contamination is down 83% as measured in herring gulls from a nearby island.¹⁴

The essence of the Clean Water Act is its prohibition of the discharge of any pollutant into the waters of the United States from any point source except when specifically sanctioned in a permit.¹⁵ It does not say anything about air deposition of mercury into a lake, habitat modification of a stream, or fertilizer running off a farmer's field. These are just some of the dogs that do not bark in the Clean Water Act. There are no provisions directly regulating these threats to water quality and aquatic resources in the law itself.

A crucial driver of the cleanup of America's waters since 1972 was the Clean Water Act's imposition of secondary treatment—a technology-based standard—on publicly-owned treatment works (POTWs) or municipal wastewater systems to control sewage. This

10. I have been unable to find this remark in print, but several of the former Administrator's associates assured me of its veracity. It was usually an aside made in the course of a speech or congressional testimony.

11. Sandra Morrison, *Lake Whitefish Returning to the Detroit River to Spawn; Federal Scientists Document First Reproducing Population of Whitefish in the River Since 1916*, SOUND WAVES MONTHLY NEWSL., Aug. 2006, <http://soundwaves.usgs.gov/2006/08/research.html>. Of course, other environmental laws and regulations contribute to this progress such as the ban on PCBs and regulation of mercury from incinerators under the Clean Air Act.

12. *Id.*

13. *Id.*

14. *Id.*

15. 33 U.S.C. § 1311 (2006).

class of large “point sources”¹⁶ discharges directly into the waters of the United States. Point sources are defined as any “discernible, confined and discrete conveyance.”¹⁷ While the definition now includes “concentrated animal feeding operation[s],” it excludes “agricultural stormwater discharges.”¹⁸

Primary treatment is the use of screens and sedimentation tanks to remove most materials that float or settle. Secondary treatment is the use of bacteria and oxygen in trickling filters or in an activated sludge process to consume organic parts of the waste stream.¹⁹

As a result of the Clean Water Act, its ambitious wastewater grants program, and its regulatory provisions, the U.S. population served by POTWs with secondary or greater (i.e., enhanced) treatment almost doubled between 1968 and 1996—from 85.9 million people to 164.8 million people—notwithstanding exemptions then in effect for discharges to the ocean which encompassed another 17.2 million served by forty-five POTWs without secondary treatment.²⁰ Indeed, it was this regulatory intervention, with an assist from the U.S.-Canadian Great Lakes Water Quality Agreement, which restored the Great Lakes—including the once dying Lake Erie—by limiting discharges from point source dischargers *only*.

Moreover, categorical, technology-based effluent guidelines were also imposed on industrial point-source dischargers, sector by sector, for numerous parameters or pollutants. In total, the EPA concluded that sixty-five designated industries or categories qualified for such regulation.²¹ It created over 360 industrial subcategories among just the first thirty industries alone.²²

It is hard to appreciate how all-consuming this legislatively mandated task of developing technology-based standards for municipal and industrial point sources was. It, along with permitting and enforcement, monopolized the time, energy, personnel, and political capital of the Office of Water at EPA—just as Congress intended, given its concern with the difficulty of calibrating or tailoring control of a specific discharger to the precise ambient water

16. 33 U.S.C. § 1362(14).

17. *Id.*

18. *Id.*

19. For the lay person’s, i.e., lawyer’s, definition of primary and secondary treatment, see ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY, 1168, 1170 (4th ed. 2003).

20. ANDREW STODDARD ET AL., MUNICIPAL WASTEWATER TREATMENT: EVALUATING IMPROVEMENTS IN NATIONAL WATER QUALITY 52 (2002).

21. Winston Harrington, *Regulating Industrial Water Pollution in the United States*, 5 n.6 (Apr. 2003) (unpublished manuscript) (on file with Resources for the Future), available at <http://www.rff.org/RFF/Documents/RFF-DP-03-03.pdf>.

22. *Id.* at 9.

quality of a particular receiving water. Such a water-quality approach requires a lot of data and analysis, sometimes leading to “paralysis by analysis” as was often the case prior to 1972. As early as 1976, over 250 lawsuits challenging specific guidelines were filed.²³

While this writer served as Assistant Administrator at the EPA, a senior career manager in the Office of Water once observed that he could count on one hand the number of regulations promulgated *without* a court-ordered deadline, a comment which says a great deal about the density of the regulatory and political process as well as our national penchant for litigation.

For both industrial and municipal dischargers, technology-based permit requirements were to be augmented by additional water-quality based controls if the applicable water quality standards already in place for any given water body were not achieved after the imposition of the technology-based standards. Since permits roll over every five years, this could be accomplished over time as necessary.

Again, point sources were and still are the only sources regulated under the Clean Water Act.²⁴ By way of comparison, runoff from row crop agriculture is not, and is thus considered a nonpoint source, not a point source. As of 2007, under the Safe Drinking Water Act,²⁵ “92 percent of community [drinking] water system customers (262 million people) were served by facilities for which state[] [programs] reported no violations of the EPA’s health-based . . . standards.”²⁶ These sources are akin to point sources under the Clean Water Act and are also subject to regulation end-of-pipe, so to speak. The failure to reach 100% may be excused given that there are 52,000 community water systems in the United States, although just 8% of them (4,132) serve 82% of the population.²⁷ Compare this to England, Wales, and Scotland, which, together, have only eleven utilities.²⁸

“The Clean Water Act has enjoyed considerable success in cleaning up the most obvious water quality problems,” writes Pro-

23. *Id.* at 10.

24. Stormwater is regulated under the law, but that is a complex case and beyond the scope of our discussion here.

25. 42 U.S.C. §§ 300(f)-300(j) (2006).

26. U.S. ENVTL. PROTECTION AGENCY, EPA-260-R-08-002, EPA’S REPORT ON THE ENVIRONMENT: HIGHLIGHTS OF NATIONAL TRENDS 15 (2008), *available at* http://www.epa.gov/roehd/pdf/roe_hd_layout_508.pdf.

27. U.S. ENVTL. PROTECTION AGENCY, EPA 816-K-08-004, FACTOIDS: DRINKING WATER AND GROUND WATER STATISTICS FOR 2008 (2008), *available at* http://www.epa.gov/safewater/databases/pdfs/data_factoids_2008.pdf.

28. See MICHAEL ROUSE, INSTITUTIONAL GOVERNANCE AND REGULATION OF WATER SERVICES: THE ESSENTIAL ELEMENTS (2007).

fessor Robin Craig,²⁹ expressing a view widely shared. She cites EPA sources indicating that in 1972 “only a third of the nation’s waters were safe for fishing and swimming. Wetlands losses were estimated at about 460,000 acres annually.”³⁰ “In contrast, by the late 1990s, ‘two-thirds of the nation’s waters [were] safe for fishing and swimming.’”³¹ Recent studies estimate the rate of wetlands losses at approximately 70,000 to 90,000 acres annually.³²

The governance structure for the regulation of point sources under the Clean Water Act was pretty straightforward, even if difficult to implement in practice. Congress passed the law. The EPA issued regulations and guidance and delegated to qualifying states the authority over permitting, inspection, and enforcement subject to federal oversight. The state programs then issued permits to municipal and industrial sources, monitored discharges, and inspected and enforced against regulated entities as needed.

It was a linear, top-down system of command-and-control regulation of a large but discrete class of dischargers. While not terribly efficient, it has been effective. It was monophonic plainsong, hardly a symphony.

II. REACHING THE APOGEE OF WATER QUALITY?

Despite the undeniable and tangible progress over the last thirty-eight years, water quality managers perceive that forward momentum has slowed considerably; the nation is treading water, so to speak. Moreover, they anticipate that a recovering, growing economy will present ongoing challenges as will the anticipated growth in U.S. population by more than 135 million over the next forty years.³³

In January 2009, the EPA released its national report³⁴ to Congress on water quality for the 2004 reporting cycle, as required by Section 305(b)³⁵ of the Clean Water Act. This report summarizes water quality assessments from almost all of the states and territories. However, it draws its information from an admittedly

29. ROBIN KUNDIS CRAIG, ENVIRONMENTAL LAW IN CONTEXT: CASES AND MATERIALS 751 (2005).

30. *Id.* (internal alteration omitted).

31. *Id.* (internal alteration omitted).

32. *Id.*

33. STATE-EPA NUTRIENT INNOVATIONS TASK GROUP, AN URGENT CALL TO ACTION 1 (2009), available at http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/aqlife/pollutants/nutrient/upload/2009_08_27_criteria_nutrient_nitgreport.pdf.

34. U.S. ENVTL. PROTECTION AGENCY, EPA 841-R-08-001, NATIONAL WATER QUALITY INVENTORY: REPORT TO CONGRESS FOR THE 2004 REPORTING CYCLE (2009), available at http://water.epa.gov/lawsregs/guidance/cwa/305b/upload/2009_01_22_305b_2004report_2004_305Breport.pdf [hereinafter WATER QUALITY INVENTORY].

35. 33 U.S.C. § 1315(b)(1) (2006).

small subset of the nation's total waters and may not be representative of water bodies that are not assessed, which are actually the vast majority. Since reporting jurisdictions assessed only 16% of the nation's 3.5 million river and stream miles, 39% of its 41.7 million acres of lakes, ponds, and reservoirs, and 29% of its 87,791 estuary square miles, the statistical validity of the 305(b) reports is open to legitimate question.³⁶ It is all we have had to rely on until just recently. As Shakespeare wrote, "[a]n ill-favoured thing, sir, but mine own."³⁷

The bottom lines from these reports are as follows:

- 44% of assessed river and stream miles were impaired, i.e., not meeting applicable water quality standards for one or more state-designated uses such as swimming, or fishing;
- 64% of assessed lake acres were similarly impaired;
- As were 30% of assessed estuary miles.³⁸

The EPA reports that for rivers and streams, pathogens, habitat alterations, and organic enrichment/oxygen depletion were leading causes of impairment.³⁹ The top sources of impairment included agricultural activities, hydrologic modifications (e.g., water diversions and channelization), and other unknown or unspecified causes.⁴⁰

For lakes and reservoirs, mercury, PCBs, and nutrients were leading causes and top sources of pollutants included atmospheric deposition, agriculture, and other unknown/unspecified sources.⁴¹ For bays and estuaries, pathogens, organic enrichment/oxygen depletion, and mercury were the major reasons for impairments.⁴² Interestingly, only in this category of waters were municipal/discharges, i.e., point sources, listed as top sources of impairment, along with atmospheric deposition and other unknown or unspecified sources.⁴³

The EPA and the states have commenced a round of probability-based surveys to complement the 305(b) reports, which are of limited scope. These surveys select sites at random to provide estimates of the condition of a class of waters in a state or region. In

36. WATER QUALITY INVENTORY, *supra* note 34, at 1-2.

37. WILLIAM SHAKESPEARE, AS YOU LIKE IT act 5, sc. 4 (William Aldis Wright ed., Clarendon Press 1877).

38. WATER QUALITY INVENTORY, *supra* note 34, at 1-2.

39. *Id.* at 1.

40. *Id.*

41. *Id.* at 2.

42. *Id.*

43. *Id.*

2006 the agency released its Wadeable Streams Assessment, the first statistically-valid survey of the biological condition of small streams throughout the country, conducted in 2004-2005.⁴⁴

This assessment focused on streams that feed rivers, lakes, and coastal areas and was based on sampling of 1,392 sites representing similar ecological characteristics in various regions conducted by more than 150 field biologists.⁴⁵ It revealed that only 28% of the streams were in good condition, with 25% in fair condition and 42% in poor condition.⁴⁶ Again, even with the application of state-of-the-art sampling and surveying techniques, the findings as to water quality in this class of waters leaves much room for improvement.

One begins to sense that the nation has reached the apogee in its quest for water quality under the existing regulatory regime. A look at the most significant of the nation's watersheds offers more reasons to be concerned about the current state of our national water program in terms of overcoming contemporary challenges to water quality.

In its first of three committee reports, an expert panel of the National Research Council of the National Academies on the Mississippi River and the Gulf of Mexico noted that the hypoxic or "Dead Zone" in the Gulf is caused by polluted runoff from the Mississippi, Ohio, and Missouri River basins.⁴⁷ This hypoxic zone has been measured at various stages as the size of New Jersey or Massachusetts.⁴⁸ 90% of the nitrogen delivered to the Gulf—the primary cause of its over-enrichment and oxygen depletion—comes from unregulated, diffuse, and agricultural nonpoint sources of pollution, including approximately 58% from fertilizer and mineralized soil nitrogen.⁴⁹

It is a measure of how small the relative contribution of traditional, regulated point sources (the pipes in the water) to the Gulf hypoxic problem that Chicago's wastewater system may be the single biggest point-source discharger of nutrients to that body of water—at least since the reversal of the flows of the local rivers to avoid polluting Lake Michigan at the end of the nineteenth centu-

44. U.S. ENVTL. PROTECTION AGENCY, EPA 841-B-06-002, WADEABLE STREAMS ASSESSMENT: A COLLABORATIVE SURVEY OF THE NATION'S STREAMS 3 (Dec. 2006), *available at* http://water.epa.gov/type/rs/monitoring/streamsurvey/upload/2007_5_16_streamsurvey_WS_A_assessment_May2007-2.pdf.

45. *Id.* at i, ES-4.

46. *Id.* at ES-5

47. COMM. ON THE MISS. RIVER AND THE CLEAN WATER ACT, NAT'L RESEARCH COUNCIL, MISSISSIPPI RIVER WATER QUALITY AND THE CLEAN WATER ACT: PROGRESS, CHALLENGES, AND OPPORTUNITIES 40-41 (2008) [hereinafter MISSISSIPPI RIVER WATER QUALITY]. This writer is a member of this NRC panel or committee.

48. *Id.* at 56.

49. *Id.* at 40.

ry.⁵⁰ These waters now flow across the basin divide, down the Illinois River, into the Mississippi, and down to the Gulf.

In 2001 the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force submitted to Congress its first *Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico*.⁵¹ Resources have been insufficient, but some observers believe an important reason for lack of action “is a lack of a central institution with the mandate and structure that match the scale of the problem.”⁵² Robert Wayland, former director of the EPA’s Office of Wetlands, Oceans, and Watersheds and chair of the task force coordination committee argued that “[t]here is not a watershed-wide organization with the right mandate to pursue this work, but there has been no champion from Louisiana arguing for significant funding for EPA or any other agency to try to put the institutional framework in place. So it’s really been a shoestring effort.”⁵³

The Chesapeake Bay presents another disturbing case study of the limits on our ability to protect and restore one of the world’s most significant estuaries, a watershed overlapping six states and Washington, D.C. The Bay “is home to almost 17 million people. About 150,000 people move to the area each year[,]” and the population is predicted to reach nearly twenty million by 2030, most of whom will live within a few minutes of one of 100,000 streams and rivers draining into the Bay.⁵⁴

The Bay and its tributaries are suffering primarily from excess nitrogen, phosphorus, and sediment entering their waters.⁵⁵ The main sources are agriculture, urban and suburban runoff, wastewater, and airborne contaminants.⁵⁶ Assuming 100% represents a fully restored Bay ecosystem, the EPA’s Chesapeake Bay Program ranks its overall health at 38% with the water quality component coming in at a very poor 21% for 2007 and 2008.⁵⁷

50. I have made this assertion in the presence of officials with the Chicago Water Reclamation District several times, without eliciting any protests, just smiles.

51. MISS. RIVER/GULF OF MEX. WATERSHED NUTRIENT TASK FORCE, ACTION PLAN FOR REDUCING, MITIGATING, AND CONTROLLING HYPOXIA IN THE NORTHERN GULF OF MEXICO (2001), available at http://www.epa.gov/owow_keep/msbasin/pdf/actionplan2001.pdf.

52. Rebecca L. Gruby & Larry B. Crowder, *Still Waters Run Deep*, THE ENVTL. FORUM, Nov.-Dec. 2009, at 24, 27.

53. *Id.*

54. CHESAPEAKE BAY PROGRAM, EPA-903-R-09-001, BAY BAROMETER: A HEALTH AND RESTORATION ASSESSMENT OF THE CHESAPEAKE BAY AND WATERSHED IN 2008 1 (2009) available at http://www.chesapeakebay.net/content/publications/cbp_34915.pdf [hereinafter BAY BAROMETER].

55. *Id.* at 4.

56. *Id.*

57. *Id.* at 4, 6.

“Agriculture is the number one source of pollution to the Bay[,]” according to the EPA.⁵⁸ It covers roughly 25% of the watershed, with 87,000 farms across 8.5 million acres.⁵⁹ While some large-scale livestock operations are regulated, the application of fertilizers—i.e., nutrients and pesticides—are not addressed by the Clean Water Act.

That said, urban and suburban stormwater runoff, another major source of pollution in the Bay watershed, “is the only source of pollution that is increasing.”⁶⁰ It is correlated with population growth, affluence, and, most directly, with impervious surfaces—roads, rooftops, parking lots, etc.—which prevent infiltration, retention of water on site, and evapotranspiration, which removes pollutants, reduces velocity, and avoids increases in water temperature.⁶¹

At a certain level of imperviousness in a watershed, a condition known as “urban stream syndrome” develops, characterized by flash flooding, elevated nutrient and contaminant levels, altered stream morphology, sedimentation from eroded stream banks, and loss of species diversity.⁶² The stream ends up in a concrete box or channel.

The Potomac Conservancy,⁶³ a land trust and policy advocacy organization, publishes an annual *State of the Nation’s River Report* for the Potomac River—one of the top three tributaries to the Chesapeake Bay—delivering 19% of the flow.⁶⁴

Its 2007 report indicates that “the amount of developed land in the watershed has doubled since 1970.”⁶⁵ In the next twenty years, the population of the Potomac watershed will likely grow by 10% per decade, adding one million inhabitants.⁶⁶ Fairfax County, Virginia, ground zero in the Washington suburban boom, lost 26% of its forest area between 1986 and 1999.⁶⁷ Between 2000 and 2030,

58. *Id.* at 10.

59. *Id.*

60. *Id.*

61. *Id.* at 10, 13.

62. See Judy L. Myer et al., *Stream Ecosystem Function in Urbanizing Landscapes*, 24 J. N. AM. BENTHOLOGICAL SOC’Y 602 (2005); See also Christopher J. Walsh et al., *Stream Restoration in Urban Catchments through Redesigning Stormwater Systems: Looking to the Catchment to Save the Stream*, 24 J. N. AM. BENTHOLOGICAL SOC’Y 690 (2005).

63. See generally POTOMAC CONSERVANCY, www.potomac.org (last visited Feb. 18, 2011). This writer serves on the Conservancy’s board of directors.

64. BAY BAROMETER, *supra* note 54, at 1.

65. POTOMAC CONSERVANCY, STATE OF THE NATION’S RIVER: POTOMAC WATERSHED 2007 (2007), available at <http://www.potomac.org/site/wp-content/uploads/pdfs/SONR-2007.pdf>.

66. *Id.*

67. *Id.*

“models predict that developed land in the greater the Washington, D.C., area will increase by 80%[.]”⁶⁸

The Conservancy’s 2007 report also cites the local Council of Governments for the fact that impervious cover in the Washington, D.C., area grew from 12.2% to 17.8% from 1986 to 2000.⁶⁹ “Consider that it took more than 200 years to cover the forests and fields with the 12.2%, and in 14 years we have watched [the] percentage of impervious surface increase by almost 50%[.]” the report states.⁷⁰

Although stormwater is essentially a species of nonpoint source pollution, in 1987 Congress jammed it into the mold of a point-source pollutant when it wrote Section 402(p)⁷¹ of the Clean Water Act, bringing it into the permitting program and empowering the EPA to regulate certain industrial activities and municipal separate storm sewer systems. This, of course, is dealing with the problem after the fact, given that land use, planning and zoning, building, and highway codes are all primarily controlled by local governments that have the capacity for dealing with the spread of impervious cover more effectively at the front end of development. In any event, the addition of these new sources to the permitting program expanded the EPA’s responsibilities “by almost an order of magnitude” according to a recent National Research Council report.⁷²

The stormwater program has a long way to go to achieve the rigor of traditional point-source regulation. It may never quite get there, but it will most certainly improve over time. Yet, prevention is better than remediation; state and local governments ought to become involved in “building excellence in” rather than trying to regulate errors out, to take a line from the Total Quality Management movement. In other words, local governments can guide their communities to avoid or minimize impervious surfaces in the first place, protect green space, protect and expand urban tree cover, and create incentives for “green” infrastructure and low-impact development (LID) in the form of green roofs, rain gardens, rain barrels, green walls, vegetated bio-swales, and permeable pavement.

According to the National Research Council, citing data from the EPA’s 2002 305(b) report, urban stormwater was listed as the

68. *Id.*

69. *Id.*

70. *Id.*

71. 33 U.S.C. § 1342(p) (2006).

72. COMM. ON REDUCING STORMWATER DISCHARGE CONTRIBUTIONS TO WATER POLLUTION, NAT’L RES. COUNCIL, URBAN STORMWATER MANAGEMENT IN THE UNITED STATES 1 (2008), available at <http://www.nap.edu/catalog/12465.html>.

primary source of water quality impairment for 13% of all rivers, 18% of all lakes, and 32% of all estuaries.⁷³ “Although these numbers may seem low, urban areas cover just 3 percent of all of the land mass of the United States, and so their influence is disproportionately large.”⁷⁴ Developing and developed areas contain some of the most degraded waters in the country, notes the Council.⁷⁵ One might add that stormwater flow is the underlying cause of one of the most significant, and certainly the most expensive, urban wet weather issue: Combined Sewer Overflows (CSOs).⁷⁶

Connecting water quality managers and regulators with local or municipal officials who control roads, building codes, and development is a major challenge in terms of watershed governance. Unfortunately, in most communities these are parallel universes. There are outstanding exceptions to this state of affairs in cities such as Seattle, Portland (Oregon), Philadelphia, Cincinnati, Chicago, and Milwaukee, to name a few.

III. THE SYMPHONIC APPROACH

Peter Drucker, the godfather of American management consulting, once said, “[h]e whom the Gods would destroy they first give forty years of success.”⁷⁷ While Drucker may have been thinking of General Motors, his comment also applies to America’s current predicament in terms of its water quality. Thirty-eight years after passage of the Clean Water Act, we are closing in on that forty-year mark. The gods have reason to be displeased:

There is a flattening out of the upward curve of progress towards better water quality in America. We confront seemingly intractable challenges, primarily stemming from our inability to grapple with diffuse, polluted runoff . . . most of which, like row crop agriculture and the expansion of impervious surfaces in rapidly urbanizing communities, are largely beyond the regulatory reach of the CWA.⁷⁸

73. *Id.* at 25.

74. *Id.* (citation omitted).

75. *Id.*

76. See Robert Harwood & Adrian J. Saul, *Combined Sewer Overflows*, FLUENT.COM, (2001), <http://www.fluent.com/solutions/articles/ja141.pdf>; see also ENVTL. PROTECTION AGENCY, NATIONWIDE EVALUATION OF COMBINED SEWER OVERFLOWS AND URBAN STORM-WATER DISCHARGES VOLUME II: COST ASSESSMENT AND IMPACTS (1977), available at <http://www.epa.gov/ednrmrml/publications/reports/epa600277064/epa600277064.htm>.

77. RUSSELL L. ACKOFF & SHELDON ROVIN, *REDESIGNING SOCIETY* 165 (2003).

78. G. Tracy Mehan, III, *Establishing Markets for Ecological Services: Beyond Water Quality to a Complete Portfolio*, 17 N.Y.U. ENVTL. L.J. 638, 638 (2008).

For too long, water quality management has been characterized by compartmentalization and the creation of artificial boundaries among and between various aspects of what should be a unified approach to water quality in terms of the chemical, physical, and biological integrity of the nation's waters. It has tolerated—even encouraged—a bifurcated approach, allowing unnecessary polarities to dominate policy and practice: water quality versus quantity; land versus water; surface water versus groundwater; point versus nonpoint sources; energy versus water; and supply-side versus demand-side management.

The water policy community in America has struggled to implement the vision of John Wesley Powell, the great explorer of the Colorado River and second director of the U.S. Geological Survey, as articulated in his remarks to the Montana Constitutional Convention in 1889:

I want to present to you what I believe to be ultimately the political system which you have got to adopt in this country, and which the United States will be compelled sooner or later ultimately to recognize. I think each drainage basin in the arid land must ultimately become the practical unit of organization, and it would be wise if you could immediately adopt a county system which would be convenient with drainage basins.⁷⁹

The watershed approach can be described as “a coordinating framework for environmental management that focuses public and private sector efforts to address the highest priority problems within hydrologically-defined geographic areas, taking into consideration both ground and surface water flow.”⁸⁰

Arid or humid, west or east of the hundredth meridian, the watershed approach makes sense even if tradition and our constitutional system preclude the jurisdictional arrangements contemplated by Powell. So it is necessary to work over, under, around, and through the political boundaries that appear to constrain watershed perspective.

79. DANIEL KEMMIS, *THIS SOVEREIGN LAND: A NEW VISION FOR GOVERNING THE WEST* 177 (2001). Evidently, the presentation did not go all that well according to the environmental historian, Donald Worster. See *A RIVER RUNNING WEST: THE LIFE OF JOHN WESLEY POWELL* 481 (2001).

80. NACWA STRATEGIC WATERSHED TASK FORCE, *RECOMMENDATIONS FOR A VIABLE AND VITAL 21ST CENTURY CLEAN WATER POLICY* 6 (2007) (quoting U.S. ENVTL. PROTECTION AGENCY, *WATERSHED PROTECTION APPROACH FRAMEWORK* (1996)), available at http://www.eli.org/pdf/NACWA_WaterPolicy_2007.pdf.

A 2009 report from the Aspen Institute on its recent sustainable infrastructure dialogue echoes Powell's plea.⁸¹ The report sets out three principles as the basis for its many recommendations for redefining the nation's concept of infrastructure and putting it on the "Sustainable Path." First, "the traditional definition of water infrastructure must evolve to embrace a broader, more holistic definition of sustainable water infrastructure that includes both traditional man-made water and wastewater infrastructure *and* natural watershed systems."⁸² Second, this principle "should be embraced by all public and private entities involved in water management, and these same entities have a shared role in ensuring their decisions consider and integrate a set of criteria that include environmental, economic and social considerations (the Sustainable Path)."⁸³ The third principle explicitly states "that a watershed-based management approach is required for drinking water, wastewater and stormwater services to ensure integrated, sustainable management of water resources."⁸⁴

The Aspen report states that water and wastewater utilities

can lead the way by developing policies and practices that promote the preservation and restoration of water resources and by fostering strategic partnerships to collaboratively use integrated water resource planning and management as a tool to examine assumptions concerning supply, demand and alternative methods of meeting unmet future demand and social, economic and environmental challenges.⁸⁵

Implementing the ideas of John Wesley Powell and the Aspen Institute across a span of 120 years has been daunting given the range of players a watershed manager has to engage if he or she is to address issues inherent in an authentic ecological or watershed approach. The water manager is truly "playing without the ball." Many other parties have the authority, the resources, the expertise, and the political capital required to achieve the goals of restoration and protection at the landscape scale.

81. See generally THE ASPEN INST., SUSTAINABLE WATER SYSTEMS: STEP ONE—REDEFINING THE NATION'S INFRASTRUCTURE CHALLENGE (2009), available at http://www.aspeninstitute.org/sites/default/files/content/docs/pubs/water_infra_final.pdf [hereinafter SUSTAINABLE WATER SYSTEMS]. This writer participated in the dialogue. See G. Tracy Mehan, III, *Redefining Water Infrastructure for the 21st Century*, ROLL CALL, July 20, 2009, available at <http://www.rollcall.com/news/36979-1.html>.

82. SUSTAINABLE WATER SYSTEMS, *supra* note 81, at 6.

83. *Id.*

84. *Id.* at 7.

85. *Id.*

Consider the numerous actors implicated in the agricultural sector who must be mobilized to achieve the nutrient reductions needed to achieve water quality standards—farmers, ranchers, concentrated animal feeding operations (CAFOs), processors, fertilizer companies and dealers, grocery chains, chemical companies and pesticide dealers, land grant universities, extension agents, trade associations, and federal and state agencies.

In the area of stormwater runoff and impervious surfaces, the roster of players includes, but is not limited to, mayors, city and county councils, township governments, planning and zoning departments, home builders, housing officials, real estate developers, homeowners, lawn fertilizer businesses, banks, public works and highway departments, parks and recreation officials, local land trusts, pavement manufacturers, and regional councils of governments.

If watershed management is going to be effective, it must address the human dimension as well as hydrology, soil science, biology, and water chemistry. For this reason, watershed governance requires reinventing the watershed as a social as well as a scientific reality.

A famous theologian said, “truth is symphonic.”⁸⁶ A symphony means “sounding together.”⁸⁷ There is sound, then “different sounds singing together in a dance of sound.”⁸⁸ All the instruments are different, even striking, not a bad thing, each with its own timbre. “[T]he composer must write for each part in such a way that this timbre achieves its fullest effect. . . . In the symphony, however, *all* the instruments are integrated in a whole sound.”⁸⁹ Yet, claims this theologian, “[t]he orchestra must be pluralist in order to unfold the wealth of the totality that resounds in the composer’s mind.”⁹⁰

While the unity of the composition comes from the Divine, the purpose of the pluralism is to allow the members of the orchestra “symphonically to get in tune with one another and give allegiance to the transcendent unity.”⁹¹ But it is important to keep in mind that “[s]ym-phony by no means implies a sickly sweet harmony

86. See generally HANS URS VON BALTHASAR, TRUTH IS SYMPHONIC: ASPECTS OF CHRISTIAN PLURALISM (Ignatius Press 1987). The title of the German original is DIE WAHRHEIT IST SYMPHONISCH; ASPEKTE DES CHRISTLICHEN PLURALISMUS (Johannes Verlag, ed., Einsiedeln 1972).

87. VON BALTHASAR, *supra* note 86, at 7.

88. *Id.*

89. *Id.*

90. *Id.*

91. *Id.* at 9.

lacking all tension. Great music is always dramatic [D]issonance is not the same as cacophony.”⁹²

It is no breach of the wall separating church and state to observe that the idea of symphonic truth provides some vivid insights into the essential requirements of watershed management, especially as it relates to managing the diverse and varied human activities across the landscape that threaten the integrity of streams, rivers, lakes, and estuaries. The idea of pluralism inherent in the symphonic approach is congenial to the idea of democracy, limited government, and a healthy, diverse civil society, all of which are implicated in issues relating to watershed governance.

The crucial question remains: what models of watershed governance align with this concept of symphonic truth, and its inherent pluralism, given the diversity, dispersion, and relative independence of so many of the actors in the watershed? As will become clear, various models of governance will exist contemporaneously with one another, implicating different levels of government, economic sectors, geographic areas, or civil society including the private and not-for-profit realms. They will embody concurrent, sometimes mutually reinforcing modes of regulation and collaboration.

IV. MODELS OF WATERSHED GOVERNANCE

There are a range of governance models for watershed management which span a continuum running from command-and-control to more collaborative models. The viability of these options is dependent upon constitutional, statutory, cultural, social, economic, and prudential limitations of each individual watershed community.

The Clean Water Act does not grant the EPA direct control over land-based activities, although Congress could extend direct regulation to individual farmers or communities if it so desired. For the foreseeable future, it appears to prefer extending conservation subsidies to agriculture to achieve water quality ends.⁹³

92. *Id.* at 15.

93. A recent example is the U.S. Department of Agriculture’s (USDA) new Mississippi River Basin Healthy Watersheds Initiative (MRBI) to be implemented by its Natural Resources Conservation Service (NRCS), which is designed to “help producers in selected watersheds in the Mississippi River Basin voluntarily implement conservation practices that avoid, control, and trap nutrient runoff; improve wildlife habitat; and maintain agricultural productivity.” NATURAL RES. CONSERVATION SERV., *MRBI Overview*, http://www.nrcs.usda.gov/programs/mrbi/mrbi_overview.html (last visited Feb. 18, 2011). The MRBI will direct an additional \$80 million each fiscal year, FYs 2010-2013, into selected watersheds. Press release, United States Department of Agriculture, Agriculture Secretary Vilsack Announces Major Initiative to Improve Health of Mississippi River Basin (Sept.

States, as sovereign governments, cannot be required to do what the federal government wants or have their officials commandeered to do its bidding.⁹⁴ That said, most states have voluntarily taken on the responsibilities of carrying out and implementing federal environmental statutes, including the Clean Water Act, in order to gain some control over the regulatory apparatus, keep government closer to home, and garner at least some financial aid. In order to receive this delegation, states have put in place statutes, regulations, and enough capacity (money and personnel) to carry out these responsibilities subject to EPA oversight to ensure compliance with federal law.

A. The SIP Model

States are free, say, to regulate row-crop agriculture, land use, and other activities using their independent sovereign powers presently not given to the EPA by Congress. It was originally proposed by the Clinton administration and now the Obama administration that the EPA require states to regulate sources that cannot presently be regulated by the EPA as a condition of its Clean Water Act delegation.⁹⁵ Thus, such an approach could be termed the *SIP model*, named after State Implementation Plans or SIPs utilized in the Clean Air Act,⁹⁶ the most prominent example in environmental law in which the federal government calls upon states to do that which it does not have the authority, political will, or resources to do itself.

Under the Clean Air Act, the EPA establishes nationally uniform ambient air quality standards and then requires states to develop and submit for approval SIPs specifying measures to assure that air quality within areas of non-attainment meet those standards.⁹⁷ The EPA cannot dictate the precise mix of control measures taken to accomplish the goal as long as the state program can credibly achieve the desired outcome.⁹⁸ The states can use a variety of

4, 2009), available at <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2009/09/0463.xml>.

94. See *New York v. United States*, 505 U.S. 144, 174-75 (1992) (holding that a “take title” provision requiring states to accept ownership of waste or regulate according to the instructions of Congress violates the Tenth Amendment and is not within Congress’ enumerated powers).

95. See Jonathan Cannon, *A Bargain for Clean Water*, 17 N.Y.U. ENVTL. L.J. 608, 623-25 (2008). Cannon served at EPA in the Clinton administration before it tried to require implementation of such an approach. He does, however, counsel trying again. As it turns out, the complexion of Congress is entirely different from then, at least for now.

96. Clean Air Act, 42 U.S.C. §§ 7401-7671(q) (2006).

97. 42 U.S.C. § 7410(a)(1).

98. See *Virginia v. EPA*, 108 F.3d 1397, 1409-10 (D.C. Cir. 1997) (holding that EPA’s provision authorizing the agency’s requirement that states revise their SIPs did not mean

regulatory and economic tools and legal authorities to accomplish the goal.

If the SIP does not pass muster with the EPA, it can impose a Federal Implementation Plan (FIP) to enforce air quality controls available under the law. It will, of necessity, focus on larger sources.

The SIP approach for water quality was tried once under the Clinton administration in the face of a hostile Congress which beat it back. The attempt was made in the context of something called the Total Maximum Daily Load (TMDL) program, a kind of pollution budget required under Section 303 of the Clean Water Act for impaired waters, or those not achieving water quality standards for the protection of various designated uses. Under a TMDL, the state establishes waste load allocations for regulated point sources, which are then incorporated into permits, as well as load allocations for even unregulated classes of nonpoint sources such as row-crop agriculture. Generally, states must demonstrate with reasonable assurance that TMDLs will achieve water quality standards.

While the federal Clean Water Act cannot reach nonpoint sources, states may do so, utilizing their own authorities or resources, be they regulatory or in the nature of subsidies for best management practices. In fact, some states such as California⁹⁹ require implementation of TMDLs already. Most do not. However, due to a unique set of circumstances on the Chesapeake Bay involving judicial consent decrees stemming from previous litigation and a motivated Obama administration, the SIP-like approach to TMDL implementation appears to be undergoing a revival.

In December the EPA wrote the states in anticipation of a court-ordered TMDL to go into effect in December 2010 requiring implementation plans and milestones for achieving water quality standards in the Chesapeake Bay.¹⁰⁰ The letter describes the establishment of “new accountability framework” regarding identified actions to be taken if either a state or Washington, D.C., “does not demonstrate satisfactory progress toward achieving nutrient and sediment allocations established by the EPA in the Chesapeake Bay TMDL.”¹⁰¹ States are expected to do whatever it takes to get the job done using whatever tools are at their disposal, in-

that the agency had the authorization to require that states include an EPA-specified control measure).

99. See *Pronsolino v. Nastro*, 291 F.3rd 1123 (9th Cir. 2002) (requiring the implementation of TMDLs in California).

100. Letter from Shawn M. Garvin, EPA Regional Administrator to the Hon. L. Preston Bryant, Secretary of Natural Resources (Dec. 29, 2009), available at http://www.epa.gov/region3/chesapeake/bay_letter_1209.pdf.

101. *Id.*

cluding the development of “appropriate mechanisms to ensure that non-point source load allocations are achieved.”¹⁰²

As to the “identified actions” the EPA might take if states do not meet the mark, the letter includes an enclosure outlining eight different options.¹⁰³ These options include expanding the Clean Water Act permitting program to previously unregulated storm-water or animal feeding operations by utilizing Residual Designation Authority in the regulations, objecting to proposed permits which the EPA deems inadequate, requiring net improvement offsets before new sources may be permitted, increasing federal enforcement, and conditioning and redirecting EPA grants.¹⁰⁴ The Washington Post expressed its support for the EPA’s new or updated and expanded approach in a recent editorial.¹⁰⁵

Requiring state implementation of TMDLs as to nonpoint-source load allocations is akin to the SIP model under the Clean Air Act. It is controversial, in part, because it has never been done before, given the long-standing and mandated focus on regulating point sources under the Clean Water Act. SIPs largely impact large industrial organizations, although tail pipe regulation has experienced its share of flak over the years. On the other hand, TMDL implementation will impact residential development, farmers, local planning and zoning, and more distributed sources of pollution.

It is possible that the political culture of the Bay will enable states to comply with these demands. Whether or not such an approach will work in Illinois or Iowa or Colorado is an open question. The stick can shift to another hand. States always have the option of returning their delegated programs back to the EPA, a frightening prospect for budget managers at the agency.

*B. Current Statutory Models*¹⁰⁶

One of the reasons why previous administrations and the EPA have been driven to the SIP model is the inability to promote watershed governance effectively through many of the existing statutory provisions. These current statutory models have elicited only

102. *Id.*

103. *Id.*

104. *Id.*

105. Editorial, *Bring on the Sticks—The EPA Outlines Consequences for Inaction on Chesapeake Bay Cleanup*, WASH. POST, Jan. 2, 2010, at A12.

106. See Alan H. Vicory, Jr. & G. Tracy Mehan, III, *Look to the Watershed. A Broader Approach is Needed for U.S. Water Quality Management*, WATER ENV'T & TECH., June 2005, at 32 [hereinafter *Look to the Watershed*]; see also MISSISSIPPI RIVER WATER QUALITY, *supra* note 47, at 82-94 (detailing some of the current statutory models).

modest political will and little financial support from the federal government over the last few decades.

Take for instance Section 208¹⁰⁷ of the Clean Water Act relating to area-wide facilities planning, which envisioned regional water quality management planning and the establishment of an organization to accomplish this task. Under this section, each state was to identify the boundaries of areas with substantial water quality control issues and designate a single organization to formulate management plans. The plans were to include, *inter alia*, the identification and control of nonpoint source pollution from agriculture, silviculture, mining, construction, and other sources. Presently, Milwaukee is the only large city using this section of the Clean Water Act, as discussed below.

Section 319¹⁰⁸ covers nonpoint source management programs for the states. Under this section, states had to identify impaired waters due to nonpoint sources and describe a process and program to deal with them. This, in turn, made them eligible for a very small grant program which, while sometimes leveraging solid improvements, is simply too small to achieve critical mass relative to the size and scope of the challenge. Section 319 has demonstrated concrete results in terms of collaborative problem-solving at smaller geographic scales.¹⁰⁹

Subsection (g) does authorize the EPA to convene a management conference of all states in a watershed where upstream sources impair downstream water quality.¹¹⁰ If the states can reach an agreement, they must incorporate it into their nonpoint programs. This process has been used very infrequently. Therefore, its efficacy is still a matter of speculation.

A more robust program, at least in the collaborative if not regulatory sense, is the National Estuary Program (NEP) under Section 320.¹¹¹ This section applies to twenty-eight estuaries such as Tampa Bay and Puget Sound.¹¹² NEPs conduct long-term planning and management to address the myriad issues that contribute to the deterioration of estuaries such as development.¹¹³ NEPs are nominated by state governors and accepted by the EPA if certain

107. 33 U.S.C. § 1288 (2006).

108. 33 U.S.C. § 1329.

109. See U.S. ENVTL. PROTECTION AGENCY, *Section 319 Nonpoint Source Success Stories*, <http://www.epa.gov/nps/success/> (last visited Feb. 18, 2011) (outlining 215 such cases).

110. 33 U.S.C. § 1329(g).

111. 33 U.S.C. § 1330.

112. U.S. ENVTL. PROTECTION AGENCY, NAT'L ESTUARY PROGRAM, 2004-2006 IMPLEMENTATION REVIEW REPORT 1, 3 (2008), available at http://water.epa.gov/aboutow/owow/upload/2004-2006_irreportfinal_6-19-08.pdf.

113. *Id.* at 1-2.

criteria are met which ensures local buy-in, thus making them operationally community-based.¹¹⁴

In a 2005 report the EPA documented the benefits of NEPs in terms of governing across political boundaries according to a watershed approach; “[u]sing science to develop and implement. . . [m]anagement [p]lan[s;]” “[f]ostering collaborative problem solving[;]” “[i]nforming and involving stakeholders to sustain commitment[;]” “[l]everaging limited funding resources to ensure implementation[;]” and “[m]easuring and communicating results to build support” in the community.¹¹⁵

At the scale they operate, NEPs appear to be viable models of symphonic governance, models that can complement regulatory or subsidy approaches by providing access and transparency to local citizens and stakeholders. However, NEPs do not seem to drive concentrated regulatory action or even critical mass in terms of funding broad-gauge programs. So scaling up such an approach would present challenges on large watersheds such as the Mississippi or Ohio River or Great Lakes.

The Clean Water Act also contains several sections by which the EPA can promote and fund, at a modest level, water quality and continuous planning processes with a percent of infrastructure loan and grant dollars as contemplated by Sections 604(b),¹¹⁶ 205(j),¹¹⁷ and 303(e).¹¹⁸ If the recent uptick in Congressional funding for water infrastructure continues, this might be a promising development for the watershed approach, albeit at relatively modest funding levels.

Unlike the SIP model, none of these statutory approaches require states or private parties to do anything they do not want to do already. They are process-based but cannot compel action, say, with respect to presently unregulated sources of pollution or water quality impairments.

A recent variant of these statutory approaches, scaled up substantially, is a new Staff Discussion Draft of a “Sustainable Watershed Planning Act”¹¹⁹ being circulated for comment by the House Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure. This draft

114. 33 U.S.C. § 1330(a)(1).

115. U.S. ENVTL. PROTECTION AGENCY, EPA-842-B-05-003, COMMUNITY-BASED WATERSHED MANAGEMENT: LESSONS FROM THE NATIONAL ESTUARY PROGRAM 75-76 (2005), available at <http://www.epa.gov/owow/estuaries/nepprimer/documents/NEPPrimer.pdf>.

116. 33 U.S.C. § 1384(b).

117. 33 U.S.C. § 1285(j).

118. 33 U.S.C. § 1313(e).

119. Sustainable Watershed Planning Act, 111th Cong. (2009)(Staff Discussion Draft) (unpublished manuscript) (on file with author).

is very much a work in progress and will be revised continually in the weeks ahead.

This draft legislation contemplates the establishment of an Office of Sustainable Watershed Management in the Executive Office of the President to oversee the establishment and partial funding of Regional Watershed Planning Boards for ten watersheds within states which voluntarily want to take advantage of this process and funding mechanism.¹²⁰ It is focused on large-scale watersheds the size of a portion of one of the Great Lakes or the entire Chesapeake Bay.¹²¹ It takes a big-picture approach in terms of the scale of the watersheds targeted and is comprehensive in its approach to all aspects of watershed management (land, water, surface and groundwater, etc.). Finally, it seeks to align state, federal, private, and other interests in a consistent approach to watershed planning and management.¹²²

This draft legislation also guarantees diverse representation on regional watershed planning boards co-chaired by one federal and one state representative with additional representatives for interstate agencies or compacts, Indian tribes, local governments and nongovernmental entities from a range of stakeholder interests, e.g., ranching and recreation, and geographic distribution.¹²³

The legislation eschews any interest in overriding state control of water quantity and rights.¹²⁴ Whether this assurance, the voluntary nature of the process, and the promise of greater funding will generate sufficient political support remains to be seen.

*C. The Interstate Compact Model*¹²⁵

“Since 1936 states have entered into interstate compacts for joint basin management. . . [on] the Delaware, Susquehanna, Potomac, and Ohio basins, as well as those states sharing [the borders of] the Great Lakes and Lake Tahoe[.]”¹²⁶ Approximately half “of the contiguous states are signatories to a compact created for water quality or water resources management[.]”¹²⁷ Section 103 of the Clean Water Act requires the EPA Administrator to encourage

120. *Id.* § 201(a)(1).

121. That is, “not be smaller than the boundaries defined by the 4-digit hydrologic unit code level, as defined by the United States Geological Survey.” *Id.* § 201(a)(2).

122. *Id.* § 2(b)(4).

123. *Id.* § 202.

124. *Id.* § 3.

125. See generally Vicroy, Jr. & Mehan, III, *supra* note 106; MISSISSIPPI RIVER WATER QUALITY, *supra* note 47, at 190-211 (detailing interstate collaboration and coordination of water quality improvement efforts).

126. Vicroy, Jr. & Mehan, III, *supra* note 106, at 34-35.

127. *Id.*

cooperative activities by the states and encourage compacts, but that is a provision “[m]ore honor[e]d in the breach than the observance.”¹²⁸

For those commissions established prior to 1972, of which there are six, funding is available for various functions under Section 106 of the Clean Water Act just as if they were a delegated state program since they do such things as develop TMDLs, and carry out activities relating to water quality standards, monitoring, and the like.¹²⁹

While these interstate commissions with Clean Water Act responsibilities are confined to the northeastern quadrant of the country, they may be a solid platform from which to build out more ambitious watershed-scale activities across political boundaries and societal sectors.

An exciting example of such an evolution is the collaboration between ORSANCO, the Ohio River Valley Water Sanitation Commission¹³⁰ and EPRI, the Electric Power Research Institute,¹³¹ on regional water quality trading in the Ohio River basin for control of nitrogen, phosphorus, and greenhouse gases resulting from the power sectors’ air quality removal actions which, in turn, result in water discharges.¹³² Both the EPRI and the EPA are providing financial support.¹³³ The American Farmland Trust is also participating as is a national law firm, a prominent consulting firm, and the University of California at Santa Barbara.¹³⁴

Given the scale at which this trading project will operate, power companies, farmers, and other industrial dischargers will be participating in this cost-effective program which takes advantage of the differential control costs and multiple environmental benefits to be derived from point-to-nonpoint source trading.¹³⁵ The

128. WILLIAM SHAKESPEARE, *HAMLET*, act 1, sc. 4 (1603); see 33 U.S.C. § 1253 (2006).

129. See 33 U.S.C. § 1256 (2006); see also 33 U.S.C. § 1362(b).

130. OHIO RIVER VALLEY WATER SANITATION COMM’N, <http://www.orsanco.org> (last visited Feb. 18, 2011).

131. ELECTRIC POWER RES. INST., <http://www.epri.com> (last visited Feb. 18, 2011).

132. For details on this multi-credit trading program, see *Ohio River Basin Trading Project*, ELECTRIC POWER RESEARCH INSTITUTE, <http://www.epri.com/ohiorivertrading> (last visited Feb. 18, 2011).

133. ELECTRIC POWER RES. INST., *Ohio River Basin Trading Project: Funding Opportunities*, http://my.epri.com/portal/server.pt?open=512&objID=423&&PageID=235465&mode=2&in_hi_userid=230564&cached=true (last visited Feb. 18, 2011).

134. ELECTRIC POWER RES. INST., *Ohio River Basin Trading Project: Collaborators*, http://my.epri.com/portal/server.pt?open=512&objID=423&&PageID=235470&mode=2&in_hi_userid=230564&cached=true (last visited Feb. 18, 2011).

135. See U.S. ENVTL. PROTECTION AGENCY, EPA-833-R-07-004, WATER QUALITY TRADING TOOLKIT FOR PERMIT WRITERS (2007), available at <http://www.epa.gov/npdes/pubs/wqtradingtoolkit.pdf>; U.S. ENVTL. PROTECTION AGENCY, OFFICE OF WATER, FINAL WATER QUALITY TRADING POLICY STATEMENT (2003), available at <http://water.epa.gov/type/watersheds/trading/finalpolicy2003.cfm>.

eventual participation of POTWs would be a logical development if this project is actually implemented.¹³⁶

The EPRI-ORSANCO effort also contemplates participation in emerging greenhouse gas markets since agricultural Best Management Practices (BMPs), which reduce nutrient runoff or non-point source pollution will likely reduce, say, nitrous oxide releases. One ton of nitrous oxide has the same warming impact of 310 tons of carbon dioxide.¹³⁷ A 2003 report from the World Resources Institute states that “[a]pproximately 74 percent of all U.S. nitrous oxide emissions come from agriculture, primarily from agricultural soil management activities such as commercial fertilizer application and other cropping practices.”¹³⁸

Although the initial object of the Ohio River Basin Trading Program is to anticipate numeric water quality standards for nutrients on the Ohio itself, the long-term possibilities for addressing Gulf hypoxia are tantalizing indeed. The Ohio River accounts for approximately 28 to 30% of the total nitrogen ultimately heading south.¹³⁹

V. COLLABORATION AS MODEL AND THEME: THE ROLE OF UTILITIES

No categorization of governance models is perfect. Such arrangements always partake in different modes of interaction in the real world. This is definitely true in the matter of watershed management at the local, regional, or interstate level. While the NEPs—or National Estuary Programs—discussed above are derived from the Clean Water Act, they are very collaborative in design and practice.

Interstate compact organizations or commissions, established by acts of state legislatures and Congress, must pursue collaboration in the setting of priorities and the implementation of programs simply by reason that all of their members are sovereign entities unto themselves.

Finally, a voluntary collaboration might come into existence due to the difficulties in complying with regulatory mandates. It

136. While I was Assistant Administrator for Water at EPA, we looked at the Ohio River as an excellent opportunity for large-scale water quality trading because it had a good mix of point sources and agricultural nonpoint sources, allowing for cost-effective trading. At the time we were not even thinking of the role that power plants might play.

137. SUZIE GREENHALGH & AMANDA SAUER, WORLD RESOURCES INSTITUTE, AWAKENING THE DEAD ZONE: AN INVESTMENT FOR AGRICULTURE, WATER QUALITY, AND CLIMATE CHANGE 6 (Feb. 2003), available at http://pdf.wri.org/awaken_dead_zone.pdf (citation omitted).

138. *Id.*

139. MISSISSIPPI RIVER WATER QUALITY, *supra* note 47, at 40.

may facilitate a smoother, more cost-effective means of compliance that minimizes cost while yielding multiple kinds of environmental benefits. Restoring a riparian corridor with trees and native grasses will not only improve water quality but also provide habitat, sequester carbon, and offer a pleasing aesthetic view.¹⁴⁰

Collaboration as an element of symphonic watershed governance is really a theme or component which can be incorporated or integrated into various other models.

Given the difficulties of actualizing watershed governance at the regional and interstate levels, there is some evidence that water and wastewater utilities are well-suited to assume a leadership role in effectively organizing the diversity of stakeholders, the plurality of interests and the mobilization of resources in the service of successful—i.e., symphonic—watershed management.

A. New York City Filtration Avoidance

While not a purely collaborative undertaking, at least from the standpoint of many upstate citizens, New York City's filtration avoidance program, pursuant to the Safe Drinking Water Act,¹⁴¹ illustrates the possibilities of the watershed approach in the service of a utility's mission. Driven by new regulatory requirements in the 1990s, New York pursued an alternative to spending six to eight billion dollars on a new filtration plant to protect the 1.5 billion tons of drinking water it supplies to nine million New Yorkers daily.¹⁴² 90% of the water comes from the Catskill-Delaware watershed, 125 miles north and west of the city.¹⁴³

The EPA gave its blessing to New York City to pursue a watershed management approach at a cost of only \$1.5 billion.¹⁴⁴ It effectively made the city responsible for restoring stream corridors, reforestation, buying land, paying for manure management techniques and fencing animals out of waterways, and other land or watershed-based BMPs. Instead of only managing its hard or grey water facilities, New York now is responsible for managing its im-

140. A recent study documents the monetary benefits of "green" infrastructure or low-impact development (LID) approaches in the context of urban wet weather issues (CSOs, stormwater, etc.) in Philadelphia's proposed CSO plan. STRATUS CONSULTING, A TRIPLE BOTTOM LINE ASSESSMENT OF TRADITIONAL AND GREEN INFRASTRUCTURE OPTIONS FOR CONTROLLING CSO EVENTS IN PHILADELPHIA'S WATERSHEDS: FINAL REPORT (2009), available at http://www.epa.gov/npdes/pubs/gi_phil_bottomline.pdf.

141. See generally U.S. ENVTL. PROTECTION AGENCY, *Filtration Avoidance*, <http://www.epa.gov/region2/water/nycshed/filtad.htm> (last visited Feb. 18, 2011) (detailing the history of New York City's filtration avoidance program).

142. James Salzman, *Creating Markets for Ecosystem Services: Notes from the Field*, 80 N.Y.U. L. REV. 870, 878-879 (2005).

143. *Id.* at 878.

144. *Id.*

mense watershed as well. With the February 2010 purchase of 685 acres of upstate land for \$3.1 million under its Land Acquisition Program, New York City has now protected over 105,000 acres of watershed land in parts of eight counties.¹⁴⁵ The City only acquires land from willing sellers, and it usually keeps the properties open for public access and recreational use.¹⁴⁶ Some purchases are by way of conservation easements in addition to fee simple acquisitions.¹⁴⁷

Water and wastewater utilities, if empowered by their boards, political leaders, ratepayers, and executive leadership, are well-suited to the task of collaborative governance within their own watersheds. They bring unique expertise to the table on a variety of water management matters. While facing their fair share of financial challenges, they are blessed with a steady stream of income from ratepayers as well as government loans and grants. Given that most of the American sector is municipally owned, utilities are experienced and knowledgeable in the delicate dance of inter-governmental relationships since they simultaneously fill the roles of regulator and regulated. They also understand the need to be responsive to the broader community that makes up their ratepayer base.

B. Milwaukee's "Sweetwater Trust"

The Milwaukee Metropolitan Sewerage District (MMSD)¹⁴⁸ provides a useful case history of the potential of utility leadership in leading a symphonic approach to watershed governance to address urban wet weather issues under the Clean Water Act. It is not only an example of a utility pursuing a collaborative model but also an instructive, if paradoxical, case. MMSD's long-term success may depend on an entirely new nongovernmental organization, a public-private-not-for-profit partnership, a kind of voluntary association, with a life all its own.¹⁴⁹

MMSD provides wastewater and flood management services to 1.1 million customers in 28 communities, serving 411 square miles

145. Press Release, New York City Environmental Protection, New York City to Acquire 685 Acres of Land for Watershed Protection (Feb. 28, 2010), *available at* http://www.nyc.gov/html/dep/html/press_releases/10-20pr.shtml.

146. *Id.*

147. *Id.*

148. MILWAUKEE METRO. SEWERAGE DIST., <http://v3.mmsd.com> (last visited Feb. 18, 2011).

149. What follows is based, in part, on numerous conversations with Kevin Shafer, Executive Director of MMSD, over the past three years, as well as his PowerPoint presentation. Kevin Shafer, The Milwaukee Regional Partnership Initiative PowerPoint (2008) (unpublished manuscript) (on file with author).

on the shore of Lake Michigan.¹⁵⁰ As with many older communities in the northeast, midwest and west coast, MMSD had to respond to urban wet weather issues, especially Combined Sewer Overflows (CSOs), or releases of massive amounts of wastewater during big-storm events resulting from an infrastructure design in which sewage and stormwater were conveyed in the same pipes to treatment plants. When the pipes overflow, and to avoid disrupting biological treatment processes, the wastewater is allowed to overflow into receiving waters.¹⁵¹ CSOs make up approximately 5% of MMSD's service area, but bring with them tremendous financial and environmental consequences.¹⁵²

As a result of federal policy and regulation, MMSD invested \$3 billion in "grey" infrastructure through the 1990s as part of its Water Pollution Abatement Program (WPAP) for structural work, i.e., large underground deep tunnels to hold overflows for treatment after the storm event subsided.¹⁵³ It is currently finishing another \$1 billion investment.¹⁵⁴

Before WPAP came on line, MMSD experienced between fifty and sixty overflows per year "with an annual average volume of 8 billion to 9 billion gallons of overflow."¹⁵⁵ Presently, it has only two overflows per year "with an annual average of one billion gallons of overflow."¹⁵⁶

Unfortunately, within the six sub-watersheds in MMSD's service area and tributary to Lake Michigan, 37% of the annual bacteria load comes from rural nonpoint sources and 56% from urban stormwater.¹⁵⁷ Beach closings still occur after significant storm events. These challenges now eclipse CSOs as the main obstacle to further gains in water quality.

In addition, University of Wisconsin researchers are predicting that extreme precipitation events will become 10 to 40% stronger in southern Wisconsin due to climate change and variability.¹⁵⁸

150. MILWAUKEE METRO. SEWERAGE DIST., FRESH COAST GREEN SOLUTIONS: WEAVING MILWAUKEE'S GREEN & GREY INFRASTRUCTURE INTO A SUSTAINABLE FUTURE 3, available at <http://v3.mmsd.com/AssetsClient/Documents/sustainability/sustainbookletweb1209.pdf> [hereinafter FRESH COAST GREEN SOLUTIONS].

151. U.S. ENVTL. PROTECTION AGENCY, EPA 833-R-04-001, REPORT TO CONGRESS: IMPACTS AND CONTROL OF CSOs AND SSOs, at ES-2 (2004), available at http://cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm.

152. FRESH COAST GREEN SOLUTIONS, *supra* note 150, at 4.

153. *Id.* at 3.

154. *Id.*

155. *Id.*

156. *Id.*

157. Timothy Bate et al., Water Env't Fed'n, Milwaukee's Next Step: Watershed Restoration Plans (Instead of TMDLs) Figure 1 (2008) (unpublished manuscript) (on file with author). The authors include members of MMSD staff and outside consultants.

158. Jonathan A. Patz et al., *Climate Change and Waterborne Disease Risk in the Great Lakes Region of the U.S.*, 35 AM. J. PREVENTIVE MED. 451, 451 (2008); see also *Great Lakes'*

CSO events, with resultant overflows into Lake Michigan, will rise by 50 to 120% by the end of this century.¹⁵⁹

While MMSD already used the Clean Water Act's Section 208 planning process, it has decided to pursue a collaborative approach to watershed management, focusing on flow reduction from stormwater and nonpoint sources that are either insufficiently regulated or not regulated at all. As part of this effort, it invests heavily in regional water quality monitoring on a watershed basis. It is also developing watershed restoration for its six sub-watersheds. Ultimately, MMSD hopes to incorporate at least some of these areas into a watershed-based permit to control all point and nonpoint sources across numerous municipal jurisdictions.¹⁶⁰

MMSD is already promoting watershed-based, distributed, "green" infrastructure approaches such as disconnection of downspouts, use of rain barrels, vegetated swales, cisterns, installation of green roofs, and urban reforestation to supplement grey infrastructure by reducing flow through infiltration, retention, and evapotranspiration at the site level.¹⁶¹ Subject to design, scaling and management, MMSD has documented capital cost savings from pursuing this approach.¹⁶²

MMSD is already working with the Conservation Fund, the second largest land conservancy in the nation, to buy and restore floodplains to manage flooding and reduce stormwater flows. This "Greenseams" program has already acquired over 2,000 acres since 2002 and has identified a total of 15,000 acres for purchase.¹⁶³ MMSD has spent \$13.4 million from its capital improvements budget and has also received some grants for the program.¹⁶⁴

Kevin Shafer, the Executive Director of MMSD, came to realize that suburban communities, business, agriculture, environmental groups, universities, and a range of stakeholders will have to be brought into the watershed process if the goal of transforming the

Study Ups Chances for Waterborne Disease, ENVTL. PROTECTION, Oct. 10, 2008, available at <http://eponline.com/articles/2008/10/10/great-lakes-study-ups-chances-for-waterborne-disease.aspx> (detailing the relationship between intense weather and public health risk).

159. Platz, *supra* note 158, at 451.

160. Watershed-based permits are (1) "[i]ssued on a watershed basis[.]" (2) "[f]ocused on multiple pollutant sources[.]" (3) "[t]argeted to achieve watershed goals[.]" and (4) "[i]ntegrate permit development among monitoring, water quality standards, TMDL, non-point sources, source water protection, and other programs[.]" Patrick Bradley, LimnoTech, NPDES Watershed-Based Permitting PowerPoint (2009) (unpublished manuscript) (on file with author). Bradley was the leading EPA expert on this subject before joining LimnoTech in 2008.

161. FRESH COAST GREEN SOLUTIONS, *supra* note 150, at 12-15.

162. *See id.* at 16.

163. MILWAUKEE METRO. SEWERAGE DIST., *Greenseams*, <http://v3.mmsd.com/greenseams.aspx> (last visited Feb. 18, 2011). The 15,000 figure is based on conversations with MMSD's executive director, Kevin Schafer.

164. Based on conversations with Kevin Schafer.

landscape, in both its urban and rural aspects, is to be attained. This will be accomplished by means of “green” infrastructure for stormwater control and BMPs for agricultural nonpoint sources. Shafer eventually came upon Chicago Wilderness¹⁶⁵ as a prototype of the kind of collaborative model MMSD needed to engage the larger community, including numerous local jurisdictions with a particular interest in stormwater compliance.

Chicago Wilderness is an alliance of organizations interested in protecting and restoring biodiversity in urban, suburban, and rural areas in and around the Chicago metropolitan region.¹⁶⁶ With its more than 250 members, this organization seeks to raise awareness and knowledge about nature, healthy ecosystems, and biological resources, especially prairie landscapes; increase public participation and stewardship; build alliances among diverse constituencies; and facilitate applied natural and social science research, BMPs, and the sharing of information.¹⁶⁷ It also seeks to generate broad-based public and private support and attract resources to achieve its goals.¹⁶⁸ Shafer and other leaders in Milwaukee’s water community were able to initiate an extended process of consultation and deliberation among interested stakeholders with funding from a local foundation and facilitated by a local university professor.

MMSD, working with the Southeastern Wisconsin Regional Planning Commission (SEWRPC),¹⁶⁹ had already revised its Section 208 and resolved on a regional partnership, the Milwaukee Regional Partnership Initiative, to develop restoration plans for each of its six sub-watersheds. As originally conceived, it included an Executive Steering Council with various policy, legal, technical, and scientific advisory committees with direct oversight of plan development. The Council was fairly representative of the community if limited in number.

In time, something like a consensus was realized on a new entity akin to Chicago Wilderness: the Southeast Wisconsin Watersheds Trust (SWWT),¹⁷⁰ popularly known as the “Sweet Water Trust.” Formed in 2008, it sought to focus on “integrated water resources management” across political boundaries and engage in “second level planning” to fulfill the regional plan previously de-

165. CHICAGO WILDERNESS, <http://www.chicagowilderness.org> (last visited Feb. 18, 2011).

166. *Id.*

167. *Id.*

168. *Id.*

169. SOUTHEASTERN WIS. REG’L PLAN. COMM’N, <http://www.sewrpc.org> (last visited Feb. 18, 2011).

170. SOUTHEASTERN WISCONSIN WATERSHEDS TRUST, <http://www.swwtwater.org> (last visited Feb. 18, 2011).

veloped and in conjunction with the individual “watershed restoration plans” to be undertaken in each sub-watershed.¹⁷¹ To that end, it has established “Watershed Action Teams” under the direction of an expanded Executive Steering Council.

One of its key goals is to “[i]dentify and support land use practices and designs that enhance and improve water resources and promote and restore ecological benefits.”¹⁷² It also aims to “[f]orge and strengthen relationships to leverage funding and recommend policies to assist in the implementation of projects to produce lasting water resource benefits and cost savings throughout the Greater Milwaukee watersheds and nearshore Lake Michigan.”¹⁷³

Among its primary purposes is “[t]o build partnerships and enhance collaborative decision-making and joint project implementation, engaging government, business, the building industry, agriculture, environmental, and other stakeholder organizations to obtain broad agreement and recommend where to invest funds to get the greatest benefit.”¹⁷⁴

SWWT’s membership includes individuals, units of government, non-profit organizations, and the business community.¹⁷⁵ It is hiring staff and has received a \$1.9 million grant from the Joyce Foundation.¹⁷⁶ It also convenes a well-attended annual conference.¹⁷⁷

VI. CONDUCTING A WATERSHED SYMPHONY

Alternative forms of watershed governance are not mutually exclusive. In the complex political, legal, and social realities of American communities and their watersheds can be found a mix of top-down, bottom-up, command-and-control, and collaborative approaches necessary to managing water resources and the citizens

171. SOUTHEASTERN WISCONSIN WATERSHEDS TRUST, BACKGROUND SUMMARY 1-3, available at <http://www.swwtwater.org/home/documents/Background.pdf>.

172. *Id.* at 2.

173. *Id.*

174. *Id.*

175. *About Sweet Water*, SOUTHEASTERN WISCONSIN WATERSHEDS TRUST, http://www.swwtwater.org/home/about_swwt.cfm (last visited Feb. 18, 2011).

176. Press Release, Sweet Water Trust, Sweet Water Trust and Its Environmental Partners Get Boost to Improve Water Quality in the Milwaukee River Basin (July 7, 2009), available at <http://www.reuters.com/article/idUS136348+07-Jul-2009+PRN20090707>. In a complementary move, Joyce is also providing the national environmental organization, American Rivers, a \$375,000 grant, with a \$150,000 match from MMSD, to work with Milwaukee communities to adopt sustainable “green” infrastructure solutions to wet weather problems. Press Release, American Rivers, Milwaukee’s Communities and Clean Water Benefit from Grant Awarded to American Rivers (May 1, 2009), available at <http://www.americanrivers.org/newsroom/press-releases/2009/milwaukees-communities-and.html>.

177. For details on the success of the latest conference, see SOUTHEASTERN WISCONSIN WATERSHEDS TRUST, <http://www.swwtwater.org> (last visited Feb. 18, 2011)).

who reside there. But the centrality of the land-water nexus, the overarching challenge of land-based pollution, and the various and sundry physical alterations, all of which impair the chemical, physical, and biological integrity of the nation's waters, make it imperative that water managers take a symphonic approach to watershed governance. In this way they can account for the diversity and pluralism of human activities across the landscape while attending to their paramount mission of watershed protection and restoration.

While the largest of the nation's watersheds will be governed according to their own tailor-made ways, the most common, logical means of effectuating a symphonic watershed governance model across the country is through the instrumentality of water, wastewater, and stormwater utilities that need to assume a greater leadership role in their respective home watersheds. This requires that utility managers redefine their roles in terms of watershed protection, community involvement, and facilities management.

Water managers, especially those in the utility sector, must engage, educate, enlist, and motivate many different citizens and economic sectors in the cause of water quality. They will have to become composers, conductors, and active members of a symphonic orchestra of restoration. They cannot escape this responsibility if they hope to achieve their ultimate aims in service to their customers, citizens, and the environment. Simply managing a facility is no longer sufficient. The problem extends far beyond their immediate service area to the entire basin, catchment, drainage, or watershed.

Fortunately, Americans have a knack for the kind of collaboration or partnerships that can bring success by means of a symphonic approach to watershed management and governance.

In his 1835 masterpiece, *Democracy in America*, Alexis de Tocqueville reported on his observations of the American scene after an extensive tour of the new Republic. Of special interest to our discussion is the following passage:

Americans of all ages, all conditions, and all dispositions constantly form associations. They have not only commercial and manufacturing companies, in which all take part, but associations of a thousand other kinds, religious, moral, serious, futile, general or restricted, enormous or diminutive. The Americans make associations to give entertainments, to found seminaries, to build inns, to construct churches, to diffuse books, to send missionaries to the an-

tipodes; in this manner they found hospitals, prisons, and schools. If it is proposed to inculcate some truth or to foster some feeling by the encouragement of a great example, they form a society. Wherever at the head of some new undertaking you see the government in France, or a man of rank in England, in the United States you will be sure to find an association.¹⁷⁸

Tocqueville saw voluntary, intermediate associations that mediate between individuals and government as unique institutions that—even in the early nineteenth century—flourished among Americans.

This American genius for voluntarism and collaboration is a strength which water managers need to draw upon as they reach out to their watershed communities and orchestrate a symphonic approach to watershed governance. If truth is symphonic, a symphony is what they must compose.

178. 2 ALEXIS DE TOCQUEVILLE, *DEMOCRACY IN AMERICA* 106 (10th prtg. 1966) (1840).

