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CHOICES AND INSTITUTIONS IN WATERSHED MANAGEMENT

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Responsiveness to the will of the people is not a unitary phenomenon that can be embodied in a single institution.¹

We do not yet have the necessary intellectual tools or models to understand the array of problems that are associated with governing and managing natural resource systems and the reasons why some institutions seem to work in some settings and not others.²

I. INTRODUCTION

Collaborative, place-based initiatives are a central feature of the efforts by the United States Environmental Protection Agency and other federal agencies to reinvent environmental programs. These initiatives are variously categorized as the ecosystem approach, community-based environmental protection, or watershed management.³ They involve efforts to establish shared environmental goals for a particular place or natural system. Additionally, they seek to coordinate actions by federal, state and local officials, non-governmental organizations, and private citizens to achieve those goals. They place new emphasis on the federal government's role as a facilitator or enabler, rather than as a top-down decisionmaker.⁴ This paper examines the institutions⁵ involved in one type of place-based program—the “watershed approach” or watershed management.

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¹ JERRY L. MASHAW, GREED, CHAOS, AND GOVERNANCE 155 (1997).

² ELINOR OSTROM, GOVERNING THE COMMONS 2 (1990).

³ See, e.g., U.S. ENVTL. PROTECTION AGENCY, EPA'S FRAMEWORK FOR COMMUNITY-BASED ENVIRONMENTAL PROTECTION (1999); U.S. ENVTL. PROTECTION AGENCY AND U.S. DEP'T. OF AGRIC., CLEAN WATER ACTION PLAN: RESTORING AND PROTECTING AMERICA'S WATERS, 73-75 (1998) (hereinafter Clean Water Action Plan); GEN. ACCT. OFF., ECOSYSTEM MANAGEMENT (1994); INTERAGENCY ECOSYSTEM MGMT. TASK FORCE, THE ECOSYSTEM APPROACH: HEALTHY ECOSYSTEMS AND SUSTAINABLE ECONOMIES (1995).

⁴ For a formative work setting forth this approach to environmental policymaking, see DEWITT JOHN, CIVIC ENVIRONMENTALISM (1994).

⁵ I use “institutions” broadly to include both governmental and non-governmental organizations and “the laws, rules or shared strategies” that define those organizations. Mark T. Imperial, *Institutional Analysis and Ecosystem-Based Management: The Institutional Analysis and Development Framework*, 24 ENVTL. MGMT. 449, 453 (1999),

The "watershed approach" is at the core of the Clinton Administration's 1998 Clean Water Action Plan,⁶ and many states and localities have adopted it as well. The National Research Council (NRC) defines this approach as "an integrated, holistic problem-solving strategy used to restore and maintain the physical, chemical, and biological integrity of aquatic ecosystems, protect human health, and provide sustainable economic growth."⁷ Among its "distinguishing characteristics," the NRC lists broad stakeholder engagement, "use [of] consultation and consensus-building techniques," and "a framework of intergovernmental and interagency agreements . . . [that] rely on a partnership approach rather than laws or ordinances."⁸

This paper explores the capacity of the new generation of collaborative institutions anticipated by the watershed approach to enhance cooperation among often factious partners and to yield policies that fairly reflect the preferences of the affected community. It asks: What defines a successful collaborative effort? Under what circumstances is collaboration likely to be more or less difficult? And finally, what is the role of central government, with the ability to mandate centralized policy, in collaborative institutions?

I explore these questions through an examination of the Chesapeake Bay Program, a joint effort among three states, the District of Columbia, and the federal government to restore the aquatic ecosystem of the Chesapeake Bay watershed. The success of the Chesapeake Bay Program is apparent from an increasingly elaborate and specific set of mutual undertakings among the parties and from reductions in the costs of cooperation among them. The program also shows some success in actually improving conditions in the Bay, although the evidence is preliminary and a full evaluation of the Program's environmental effectiveness must await future results. I identify several factors as crucial to the success of the Chesapeake Bay Program (in contrast to the poor showing of some other multi-state basin management efforts), including the small number of partners on its main policymaking body, the strength and relative compatibility of their interests in the management of the Bay's resources, and substantial and nuanced participation by the federal government. Based on this analysis, I

quoting S.E. Crawford & Elinor Ostrom, *A Grammar of Institutions*, 89 AM. POL. SCI. REV. 582 (1995). They include the rules "used to determine who is eligible to make decisions in some arena, what actions are allowed or constrained, what aggregation rules will be used, [and] what procedures must be followed" OSTROM, GOVERNING THE COMMONS, *supra* note 2, at 51.

⁶ See CLEAN WATER ACTION PLAN, *supra* note 3, at 73-88.

⁷ NATIONAL RESEARCH COUNCIL, NEW STRATEGIES FOR AMERICA'S WATERSHEDS 15 (1999).

⁸ *Id.* at 15.

argue for more flexibility, expanded regulatory authority and new measures of accountability for the EPA in furtherance of a contextually sensitive watershed policy, designed to minimize problems of fragmentation, parochialism, and undue centralization of decision-making.⁹

Finally, I look beyond collaborative watershed institutions as bargaining forums for existing interests to their transformative potential. Watershed institutions may modify the interests of their institutional partners in support of regional goals. They may also reshape preferences among citizens of their watershed, fostering place-related values that are then expressed through the traditional political process or through new forms "of directly deliberative participatory democracy."¹⁰ Finally, watershed institutions may compete for resources outside the watershed with established line environmental programs and with other place-based programs in a way that alters our national sense of which environments are most important to protect. All of these transformative possibilities require further study, but they offer further reason for continued experimentation with and hope for these emerging institutional forms.

II. WATERSHED CHARACTERISTICS, COMMUNITIES, AND INSTITUTIONS

I begin with three preliminary inquiries: defining watersheds; the communities implicated in watershed decision-making; and the existing institutional arrangements for watershed management.

⁹ *Id.* at 164-68; see also Helen M. Ingram, *The Political Economy of Regional Watershed Institutions*, 55 AM. J. AGRIC. ECON. 10 (1973) (explaining the political viability challenges faced by regional agencies and describing strategies employed by those agencies to achieve political viability). Throughout this paper, I use "central" or "centralized" as relative terms. "[I]n the United States, cities are 'decentralized' compared to states and states are 'decentralized' compared to the federal government." Clayton P. Gillette, *The Exercise of Trumps by Decentralized Governments*, 83 Va. L. Rev. 1347, 1351-52 (1997).

¹⁰ Charles Sabel et al., *Beyond Backyard Environmentalism*, 24 BOSTON REV. 5 (Oct.-Nov. 1999), at 4.

A. *Characteristics of Watersheds*

Three features of watersheds are key to an institutional analysis. First, watersheds, as is often noted, do not conform to the boundaries of political jurisdictions.¹¹ Most major river basins in this country cross state lines and several are shared by Canada or Mexico. Second, watersheds are multi-scalar. Smaller watersheds (e.g., the drainage area of a tributary) are nested within larger watersheds (e.g., the drainage area of an entire river system).¹² Impacts of human activity may be specific to a small watershed, or they may implicate the larger system. Impacts also may vary along a temporal as well as a spatial scale, with some problems becoming evident immediately, and others taking longer (by years or decades) to materialize.¹³ These relationships are further complicated by the phenomenon that "small watersheds react to both natural and human changes more rapidly than large watersheds,"¹⁴ so that impacts evident immediately at a small watershed level may not become apparent at the large basin level until much later.¹⁵ Finally, and related to this last point, watersheds are complex, dynamic systems. Watershed conditions evolve through a series of interrelationships among water, soils, vegetation, animals, land use, and human activities that we do not fully understand and cannot completely predict. These characteristics generally suggest the need for effective cooperation among jurisdictions involved in watershed decision-making, or consolidation of authorities in a central jurisdiction. They also suggest the importance of learning and adaptability among institutions that make and implement watershed policy.¹⁶

¹¹ NAT'L RES. COUNCIL, *supra* note 7, at 28.

¹² "In general usage, . . . watershed refers to a drainage area along with its associated water, soils, vegetation, animals, land use, and human activities." *Id.* at 39.

¹³ *Id.* at 47-51.

¹⁴ *Id.* at 51.

¹⁵ *Id.*

¹⁶ See generally J.B. Ruhl, *Complexity Theory as a Paradigm for the Dynamical Law-and-Society System: A Wake-Up Call for Legal Reductionism and the Modern Administrative State*, 45 DUKE L.J. 849 (1996) (arguing that law and society interact and develop in response to one another and therefore one cannot "lead" the other, creating a need for more complex analysis of their relationship); J.B. Ruhl, *Thinking of Environmental Law as a Complex Adaptive System: How to Clean up the Environment by Making a Mess of Environmental Law*, 34 HOUS. L. REV. 933 (1997) (drawing an analogy between complex natural systems and environmental legal systems).

B. *The Community in Interest*

Defining the community in interest figures centrally in debates about where watershed decisions should be made. The matching principle¹⁷ (or subsidiary principle) directs that environmental policy decisions should be made at the smallest jurisdiction that encompasses all the significant benefits and costs of those decisions. A decision-making jurisdiction that does not encompass all the benefits and costs might be expected to ignore or undervalue benefits and costs experienced by neighboring jurisdictions and thus reach a less than optimal result.¹⁸ At the same time, a decision-making jurisdiction that is larger than necessary to encompass all the benefits and costs might be expected to discount the preferences of those affected by the decision or ignore relevant local conditions and thus also reach a less than optimal result.¹⁹ Thus, "[i]n general, regulatory authority should go to the political jurisdiction that comes closest to matching the geographic area affected by a particular externality."²⁰

The community in interest consists of the people who bear the significant costs and benefits of addressing a watershed issue. For a water quality problem with only localized costs and benefits, this community would be local.²¹ For problems affecting the larger aquatic system, however, the relevant community might include not only watershed residents but also others outside the watershed who benefit from its use or protection. In this regard, impacts of watershed degradation can be psychological as well as physical; the health of a lake or river may have value for people who do not live on it and who may never even visit, if its degradation would leave them

¹⁷ See WALLACE OATES, *FISCAL FEDERALISM* 31-38 (1972); Henry N. Butler & Jonathan Macey, *Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority*, 142 YALE L. & POL'Y REV. 23, 25 (1996) (Symposium Issue).

¹⁸ This result could be avoided by bargaining between upstream and downstream jurisdictions, but barriers to agreement under these circumstances may be substantial. See *infra* text accompanying notes 144-150.

¹⁹ Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 589 (1996).

²⁰ Butler & Macey, *supra* note 17, at 53.

²¹ Daniel C. Esty, *Toward Optimal Environmental Governance*, 74 N.Y.U. L. REV. 1495, 1554-55 (1999) ("When the impacts are geographically concentrated, such as the management of a small watershed, regulation should be left to local or state officials.").

feeling measurably worse off.²² Nationally prominent watersheds—such as the Everglades, Lake Tahoe, or the Chesapeake Bay—might attract this kind of interest. Our “interest in a distant environmental harm is also likely to be determined,” as Daniel Esty observes, “by the scope and severity of the harm itself and our confidence that those on the scene are handling the problem appropriately.”²³

²² *Id.* at 1554; see also Richard L. Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, 82 MINN. L. REV. 535, 543 (1997) (“[O]ut-of-state citizens place value on the existence of certain natural resources—even resources that they never plan to use. Such existence, or non-use, values provide a powerful justification for federal control over exceptional natural resources such as national parks.”).

²³ Esty, *Revitalizing Environmental Federalism*, *supra* note 19, at 641. In addition to failing to consider physical and psychological spillovers, there may be other reasons that “people on the scene” may not be expected to handle their environmental problems “appropriately,” thus evoking a response from outside. These include race-to-the-bottom scenarios, public choice problems, and lack of information or administrative capacity at the state and local level. Proponents of race-to-the-bottom theory argue that fiscal or economic externalities are generated by competition among jurisdictions for economic development, resulting potentially in less than optimal levels of environmental quality across jurisdictions. Others vigorously reject the theoretical basis for the race-to-the-bottom, and argue instead that competition among jurisdictions, at both the state and local levels, will aid in establishing the proper (optimal) balance between economic development and environmental quality. In recent years, this debate has absorbed much scholarly attention. See, e.g., Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the “Race-to-the-Bottom” Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1233-44 (1992); Esty, *Revitalizing Environmental Federalism*, *supra* note 19, at 627-38 (responding to Revesz); Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, *supra* note 22, at 594-97 (responding to Esty and others). As an empirical matter, issues over the extent to which the race to the bottom actually occurs and, if so, whether it has an important effect on environmental policymaking remain unresolved. Some public choice analysts contend that, because of their higher costs of organizing relative to concentrated economic interests, environmental interests will be underrepresented at the state and local levels. See, e.g., Esty, *Revitalizing Environmental Federalism*, *supra* note 19, at 597-99. Others argue to the contrary that environmental groups may be underrepresented at the federal level. See Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, *supra* note 22, at 558-561. Still others say that they may be overrepresented at the federal level. Wallace E. Oates, *On Environmental Federalism*, 83 VA. L. REV. 1321, 1328-29 (1997). A final set of concerns focuses generally on the informational, technical and administrative capacity of state or local officials to set and implement sound environmental policy. See, e.g., Esty, *Revitalizing Environmental Federalism*, *supra* note 19, at 585-87, 613-24.

All these concerns remain open to debate as to their significance and, indeed, as to which way they cut in addressing who should decide. I focus on externalities, and the concepts of community that they suggest, because—as distinct from these other concerns—they are well-established, even among commentators otherwise skeptical of centralization, as factors that can drive suboptimal decisions and thus warrant consideration

These factors may expand the community in interest significantly beyond the physical boundaries of the watershed. They are likely to be relatively more substantial now than in the past because we have more vividly presented information about places beyond our own. Therefore, we are more likely to form significant attachments to those places and to have concerns about them. As I will discuss later, there is evidence that watersheds, or their human surrogates, actually compete for national attention (and resources) in an effort to expand the community in interest. In any event, based on this analysis, the community in interest is not the same as the community of place (e.g., watershed inhabitants),²⁴ and is potentially national or international.

An expansive formulation of the community in interest, including allowance for concerns of those outside the watershed, tends to support centralized decision-making in watershed management. Richard Stewart takes this a step further with his contention that, matching principle notwithstanding, "many Americans regard environmental quality as an important national good that transcends individual or local interest."²⁵ Thus, "environmental programs should presumptively be federal unless 'centralization failure' dictates decentralization."²⁶

Those favoring local or regional empowerment discount the strength or legitimacy of the interests of those outside the watershed, particularly to the extent those interests are in the form of psychological or "existence" values.²⁷ They argue the virtues of public participation at the local level,

of cooperative or centralized solutions. Revesz, *Rehabilitating Interstate Competition*, 67 N.Y.U. L. REV. 1210, 1211-12 (1992).

²⁴ Timothy P. Duane, *Community Participation in Ecosystem Management*, 24 ECOLOGY L. Q. 771, 772-73 (1997).

²⁵ Richard B. Stewart, *Environmental Quality as a National Good in a Federal State*, 1997 U. CHI. LEGAL F. 199, 210 (1997).

²⁶ *Id.* at 213.

²⁷ See, e.g., DONALD J. BOUDREAU AND ROGER E. MEINERS, *Existence, Value and Life's Other Ills*, in WHO OWNS THE ENVIRONMENT? 153, 67-69 (Peter J. Hill and Roger E. Meiners eds., 1998) (arguing that existence values are difficult to quantify and that "allegations of subjective utility" might be used in dry events as a basis for government intervention); Steven Shavell, *Contingent Valuation of the Nonuse Value of Natural Resources: Implications for Public Policy and the Liability System*, in CONTINGENT VALUATION, A CRITICAL ASSESSMENT 371, 380 (J. Hausman ed., 1993) (arguing against using contingent valuation to estimate non-use values of natural resources because society

which serves democratic values (in the Jeffersonian sense of direct participation). They also point to the tendency of interactions among citizens in stable communities to create "social capital"—norms of reciprocity and trust—that support cooperative behavior.²⁸ For bioregionalists and other place-based theorists, this social capital is intimately connected to the place inhabited by the community. It includes an awareness among citizens of their common interest in the place (e.g., a watershed) and norms of environmental stewardship or shared "sense of place values."²⁹ Bryan Norton and Bruce Hannan contend that sense of place value, strengthened by local autonomy, will yield environmentally protective decisions at the local level and cooperative ("bottom-up") solutions among localities on environmental matters of regional interest.³⁰

These competing claims about the relevant "community" drive much of the debate over who should decide watershed issues. Their relative merit depends heavily on context—the particular physical, biological, cultural, political, and economic setting of the problems to be addressed. My interest here is the capacity of institutions—and particularly emerging collaborative arrangements—to respond to these claims in a contextually appropriate way.

C. *Institutions of Watershed Management*

Existing institutional arrangements for managing watersheds—what one might call the institutional ecosystem—are complex. Two characteristics of these arrangements are crucial to my analysis here: fragmentation among decision-making authorities, and a dynamic of competition and cooperation that characterizes relationships among those authorities.

already recognizes the non-use value of natural resources in many ways, and tort law eliminates "hard-to-measure" components from damage awards).

²⁸ See ROBERT ELLICKSON, *ORDER WITHOUT LAW* (1991) (examining evidence that close-knit groups develop norms that maximize the collective welfare of members); ELINOR OSTROM ET AL., *RULES, GAMES & COMMON POOL RESOURCES* 45 (1994) (discussing importance of social capital in collective problems); DOUGLAS S. KENNEY, *ARGUING ABOUT CONSENSUS* 39 (2000) (discussing how interaction among concerned citizens creates social capital).

²⁹ Bryan G. Norton & Bruce Hannan, *Environmental Values: A Place-Based Theory*, 19 ENVTL. ETHICS 227, 229-36 (1997); Bryan Norton & Bruce Hannan, *Democracy and Sense of Place Values in Environmental Policy*, 3 PHIL. AND GEOGRAPHY 119, 120-25 (1999) (hereinafter Norton & Hannan, *Democracy and Sense of Place Values*); Robert W. Adler, *Addressing Barriers to Watershed Protection*, 25 ENVTL. L. 973, 1000-03 (1995); Roger Bolton & Rodney C. Jensen, *Regional Science and Regional Practice*, 18 INT'L REGIONAL SCI. REV. 133, 140-41 (1995).

³⁰ See Norton & Hannan, *Democracy and Sense of Place Values*, *supra* note 29, at 135-37.

1. Fragmentation

Existing resources and authorities for watershed management in the United States are widely dispersed, both vertically (among the federal, state and local levels) and horizontally (within levels). At the federal level, regulatory authority is scattered among EPA (water quality), the Fish and Wildlife Service and the National Marine Fisheries Service (endangered species), the Corps of Engineers (wetlands), and the Federal Energy Regulatory Commission (hydroelectric projects). These regulatory authorities are complemented (or contradicted) by a host of other federal programs affecting watersheds, including management of federal lands, subsidies and technical assistance to farmers for soil conservation and non-point source controls,³¹ and programs for water resource development.³²

States have a central role in implementing some of these federal programs. For example, the great majority of states have been authorized to administer permitting and enforcement authorities under the "cooperative federalism" provisions of the Clean Water Act.³³ In addition, each state has its own set of regulatory authorities and programs for funding and project development in watersheds. There is also a third level of regulatory and funding programs at the local level. Localities in most states exercise primary control over land use decisions affecting watershed health.³⁴ This multitude of government is mirrored by an even larger array of non-governmental groups (NGOs), representing interests at federal, state and local levels.

A closer look at the authorities and resources for protecting water quality reveals the extent of fragmentation of authorities within this system. The federal Clean Water Act announces water quality goals for the nation, including an "interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in

³¹ NAT'L RES. COUNCIL, *supra* note 7, at 169-181.

³² See William Goldfarb, *Watershed Management: Slogan or Solution?*, 21 B.C. ENVTL. AFF. L. REV. 483, 491 (1994) (describing the agencies involved in undertaking, funding, supervising, and approving water resources development projects, and the reasoning behind various development projects).

³³ 33 U.S.C. § 1370 (1994).

³⁴ See James H. Wickersham, *The Quiet Revolution Continues: The Emerging New Model for State Growth Management Statutes*, 18 HARV. ENVTL. L. REV. 489, 502-04 (1994) (discussing local inability to handle large projects and protect critical resources).

and on the water.”³⁵ Under the Act, states are to develop water quality standards for each water body or stream segment within their borders, and EPA reviews those standards to ensure that they are consistent with the purposes of the Act.

The Act also requires the EPA to establish nationally uniform technology-based pollution limits for classes and categories of industrial and municipal dischargers (“point sources”).³⁶ Permits issued to point source dischargers are to reflect the technology-based limits applicable to the dischargers’ class or category as well as any more stringent limits to ensure achievement of water quality standards in the receiving water.³⁷ The great majority of these permits are issued by states authorized to administer the federal program. Issuance of permits remains subject to EPA review.

The EPA’s regulatory authority is limited to “point source” discharges—discharges of pollutants through “discrete conveyances” that typically involve industrial or municipal sources.³⁸ The EPA has no direct authority to regulate non-point source discharges of pollutants from diffuse sources—such as stormwater runoff from farmland, woodlots, or residential areas—which are closely related to land use patterns and practices. Instead, Congress has authorized a grant program under which the EPA disburses funds for use by states that have developed, and received EPA approval of non-point source management programs.³⁹ Non-point source pollution is the main cause of forty percent or more of the remaining water quality problems in the United States.⁴⁰ Thus, land use practices affecting non-point source pollution, under primary local and state control, are key to realizing the nationally proclaimed water quality goal.

Under the matching principle, these arrangements for protecting water quality have been criticized as both over- and under-centralized. Why should the EPA oversee the setting of water quality standards for a local watershed, even where there is no indication that the standards will affect interests outside the watershed?⁴¹ Why are water quality goals national

³⁵ 33 U.S.C. § 1251(a)(2) (1994).

³⁶ 33 U.S.C. § 1311(b)(1)(A) (1994).

³⁷ 33 U.S.C. § 1342 (1994).

³⁸ 33 U.S.C. § 1362 (1994).

³⁹ 33 U.S.C. § 319(h) (1994); 33 U.S.C. Sec. 1329(h) (1994).

⁴⁰ EPA Office of Water, *Nonpoint Source Pollution: The Nation’s Water Quality Problem*, at <http://www.epa.gov/OWOW/NPS/facts/point1.htm> (last visited Oct. 27, 2000).

⁴¹ Myrick Freeman, *Water Pollution Policy*, in PUBLIC POLICIES FOR ENVIRONMENTAL PROTECTION 125-27 (P. Portney ed., 1990); Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law: The Democratic Case for Market Incentives*, 13 COLUM. J. ENVTL. L. 171, 192 (1988).

rather than watershed-specific? Why do localities control land use, even where it may affect water quality basin-wide?

The fragmentation of authorities affecting watersheds, both horizontally and vertically, complicates the process of making and implementing watershed policy. However, as I discuss in the next section, it may have important benefits. Competition and cooperation among agencies and jurisdictions in a political theater can help select the best decisionmaker or best combination of decisionmakers for a given problem and assist the public assessment of the policies chosen. It can also help determine whether collaboration among jurisdictions is to be preferred over centralized exercise of authority.

2. Institutional Bargaining

The institutional ecosystem is not static. Each of the institutional players in watershed management has its own set of interests, which it seeks to advance against the often competing interests of others. This institutional competition occurs among different levels of government (e.g., between EPA and its state counterparts) as well as among agencies at the same level of government (e.g., EPA and the Department of Agriculture) and among co-equal jurisdictions (e.g., states). Non-governmental organizations with interests in watershed management also compete against each other and against government actors as well.

The EPA's institutional interests include advancing policies that are environmentally protective and maintaining control over matters within its purview.⁴² State and local environmental agencies may have similar interests, but their constituencies will differ from EPA's, and their policy agendas will differ accordingly. Moreover, to the extent that they too are interested in maximizing their control, their interests will be at odds with EPA's (and with those of any other agency whose actions challenge their control). Other agencies (including water resource development agencies), legislative bodies, and NGOs bring an even broader array of interests into the field of watershed policy and institutional combat. The strength and

⁴² Jon Cannon, *Bargaining Politics and Law in Environmental Regulation*, in ENVIRONMENTAL CONTRACTS: COMPARATIVE APPROACHES TO REGULATORY INNOVATION IN THE UNITED STATES AND EUROPE (Kurt Deketelaere & Eric W. Orts eds., 2000).

variety of interests ensure that watershed politics are often about more than turf; they are about "real differences."⁴³

Competition is often accompanied by negotiation, as institutions seek to resolve their differences to their mutual benefit. As we have seen, no one government agency or jurisdiction has all the resources and authorities needed to deal with the complex issues of watershed management. By cooperating, diverse entities may be able to advance their agendas beyond what they could otherwise accomplish with their own limited resources and authorities, particularly in the face of continued opposition from others. Thus, there are often incentives to work out differences. In the EPA's case, reaching an agreement might involve ceding some control that it might otherwise be in a position to claim in order to increase program effectiveness or reduce the risk of overriding actions by Congress or the executive.

The bargains struck may fall short of full and faithful implementation of the law. Daniel Farber concludes that "under the Clean Water Act, states have found it possible to dodge or disobey federal mandates outright."⁴⁴ Farber believes it "quite possible that full implementation of uniform national standards would be undesirable [because of variations in local conditions and preferences], but that partial implementation is useful as a safeguard against local regulatory breakdowns."⁴⁵ This analysis suggests that fragmentation of resources and authorities and patterns of competition and negotiation among diverse institutions can yield solutions for particular watersheds that are efficient or welfare-maximizing.⁴⁶ This might be the case notwithstanding initial allocations of decision-making authority that can be criticized as less than ideal. From this "neo-Madisonian" perspective, our present system—although certainly capable of improvement—offers

⁴³ DeWitt John, *Good Cops, Bad Cops*, 24 BOSTON REV. 5 (Oct.-Nov. 1999), at 16.

⁴⁴ Daniel Farber, *Taking Slippage Seriously: Noncompliance and Creative Compliance in Environmental Law*, 23 HARV. ENVTL. L. REV. 297, 304 (1999).

⁴⁵ *Id.* at 317. See Thomas W. Merrill, *Golden Rules for Transboundary Pollution*, 46 DUKE L.J. 931, 985 (1997) (explaining

why the 'law in books' does not necessarily coincide with the 'law in action.' . . . The reality is that a legal system does not act like a machine, automatically churning out the prescribed response to identified problems. Instead, it represents a kind of regulatory commons, where effective action is dependent upon alliances of groups overcoming collective action barriers and pressuring administrators to respond).

⁴⁶ See ALBERT BRETON, *COMPETITIVE GOVERNMENTS: AN ECONOMIC THEORY OF POLITICS AND PUBLIC FINANCE* 24 (1996) (concluding that competition among government entities—both horizontal and vertical—leads to efficient results, assuming the ability of the public or some portion of it periodically to express its desires at the ballot box); see Esty, *Toward Optimal Environmental Governance*, *supra* note 21, at 1556-57 (noting that competition creates pressure on regulating entities to perform their duties more efficiently and brings more information into the policy process).

a version of watershed democracy.⁴⁷ The next section addresses the potential of collaborative watershed institutions to improve upon it.

III. WATERSHED INSTITUTIONS

Numerous versions of watershed institutions have been advanced over the years.⁴⁸ In the late nineteenth century, John Wesley Powell advocated that settlement in the arid west be organized within “‘hydrographic basins,’ or watershed units . . . rather than by the prevailing township and county system.”⁴⁹ Reflecting the dominant values of his time, Powell’s proposal was designed to facilitate publicly controlled development of water resources for irrigation—a “technological democracy”⁵⁰—not to protect the ecological health of aquatic systems. It was never adopted, and there do not appear to be serious proposals at present to reorganize local governments in the United States along watershed lines,⁵¹ although New Zealand has taken that step.⁵²

More recently, through the early 1980s, the states and the federal government experimented with a series of basin commissions established by interstate compact. Some of these commissions exercise planning and regulatory authorities ceded by member state and federal governments, with the ability to bind member jurisdictions on less than unanimous vote.⁵³ Although they have achieved some success in crafting region-wide policies,

⁴⁷ See Imperial, *Institutional Analysis and Ecosystem-Based Management*, *supra* note 5, at 459 (citing “neo-Madisonian” arguments for deliberative processes that preserve competition among jurisdictions and agencies as “more democratic than simply giving one agency the authority to impose its will on the others”).

⁴⁸ For historical accounts of the evolution of watershed management in the United States, see BETSY REIKE & DOUG KENNEY, *RESOURCE MANAGEMENT AT THE WATERSHED LEVEL: REPORT TO THE WESTERN WATER POLICY REVIEW ADVISORY COMMISSION*, app. A (1997); Adler, *supra* note 29, at 1000; Goldfarb, *Watershed Management: Slogan or Solution*, *supra* note 32, at 486-89.

⁴⁹ DONALD WORSTER, *RIVERS OF EMPIRE* 138 (1941).

⁵⁰ *Id.* at 134.

⁵¹ See BRUCE A. ACKERMAN ET AL., *THE UNCERTAIN SEARCH FOR ENVIRONMENTAL QUALITY* 204 (1974) (explaining the unfeasibility of elected watershed governments in this country).

⁵² See Resource Renewal Institute, *Case Study: New Zealand's Resource Management Act*, at <http://www.rii.org/envatlas/oceania/new-zealand/nz-index.html>.

⁵³ See, e.g., Delaware River Basin Commission, at <http://www.state.nj.us/drbc/drbc.htm>.

the river basin commissions have been less than impressive as engines of regional governance. Rather than representing the interests of the region, members of these interstate bodies have acted more typically as representing the interests of their respective jurisdictions.⁵⁴ To the extent that the river basin commissions required transferring authority away from federal and state agencies, their efforts were often undermined by those same agencies.⁵⁵ Voting rules notwithstanding, these commissions have often found it necessary to proceed by consensus.⁵⁶ Their experience suggests, as Helen Ingram observed more than two decades ago, that "political considerations cannot be sidestepped by granting a regional organization more formal authority[;] . . . decisions are going to be made by a process of negotiation and consent-building, not by the fiat of a regional agency."⁵⁷ Perhaps because of the political costs to create and maintain them and their mixed record of success, "very few of [the recently emerging organizational arrangements for watersheds] have sought to transfer powers and authorities from existing agencies to a watershed authority"⁵⁸ and have focused instead on less formal collaborative institutions. Such institutions are described as "polycentric"⁵⁹ or "networked,"⁶⁰ in contrast to centralized arrangements.

A. Collaborative Institutions

Collaborative watershed efforts, like other multi-party efforts to provide or protect a collective good, must confront the problem that rational parties, acting in their own self-interest, may refuse to cooperate, even where

⁵⁴ See, e.g., Michael McGinnis, *On the Verge of Collapse: The Columbia River System, Wild Salmon and the Northwest Power Planning Council*, 35 NAT. RESOURCES J. 63, 91 (Winter 1995) ("Cooperation between key participants is often predicated on where one lives and which interests are represented in a particular NPPC decision-making situation There is no regionwide preservation ethos."); ACKERMAN ET AL., *supra* note 51, at 201 (offering experiences of the Delaware River Basin Commission as evidence "that powerful forces divert state and national politicians from the regional implications of their decisions, despite the fact that these politicians sit [or are represented on] a 'regional' agency").

⁵⁵ NAT'L RES. COUNCIL, *supra* note 7, at 183.

⁵⁶ See, e.g., Delaware River Basin Commission, at <http://www.state.nj.us/drbc/drbc.htm>.

⁵⁷ Ingram, *supra* note 9, at 17.

⁵⁸ NAT'L RES. COUNCIL, *supra* note 7, at 186.

⁵⁹ Philip R. Wandschneider, *Managing River Systems: Centralization Versus Decentralization*, 24 NAT. RESOURCES J. 1043, 1055 (1984); Imperial, *Institutional Analysis and Ecosystem-Based Management*, *supra* note 5, at 458-59.

⁶⁰ Errol E. Meidinger, *Laws and Institutions in Cross-Boundary Stewardship*, in STEWARDSHIP ACROSS BOUNDARIES 87, 97-99 (Richard L. Knight & Peter B. Landres, eds., 1998); Lee Breckenridge, *Reweaving the Landscape: the Institutional Challenges of Ecosystem Management for Lands in Private Ownership*, 19 VT. L. REV. 363, 402 (1995).

each would gain from joint action;⁶¹ transaction costs may keep the parties from achieving a mutually beneficial result. One well-known formulation of this problem is the prisoner's dilemma game. In the two-player prisoner's dilemma game, each party has the choice of defecting or cooperating. The game is structured so that each player will be better off if both cooperate than if both defect. But, perversely, assuming that the game is played only once and that the parties have no way to make enforceable threats or commitments, the dominant strategy of each player is to defect, because she is better off defecting regardless of what the other player does.⁶² If the parties know that they will play repeatedly, however, then each party's ability to punish a defection by defecting herself in a later round may lead to mutually beneficial cooperation.⁶³ Cooperation may also occur in repeat or iterated prisoner dilemma games involving multiple parties, although it will be more difficult as the number of parties increases because of increased transaction costs. The prisoner's dilemma represents only one among a variety of possible incentive structures for multi-party watershed issues,⁶⁴ but it serves to illustrate how parties with the ability to affect watershed conditions, each acting rationally in its own interest, might produce suboptimal results. By reducing transaction costs among the parties, the

⁶¹ MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION* 1-2 (1965). For purposes of this discussion, I assume that private individuals as well as public officials representing collective bodies such as states and agencies act from rational self-interest. As discussed *infra* at notes 76-95, however, I assume rational self-interest may be strongly affected by "social norms," Cass R. Sunstein, *Social Norms and Social Roles*, 96 COLUM. L. REV. 903, 908-09 (1996), such as norms of cooperation and of environmental stewardship. See Christopher H. Schroeder, *Rational Choice Versus Republican Moment Explanations for Environmental Laws*, 9 DUKE ENVTL. L. & POL'Y F. 29, 42 (1998) (noting that the "boundaries between rational choice and some alternatives tend to blur as the concept of self interest thins out").

⁶² The payoffs are structured so that if one player cooperates and the other defects, the cooperator will be worse off than if she had also defected, and the defector will be better off than if both had cooperated. ROBERT AXELROD, *THE EVOLUTION OF COOPERATION* 7-11 (1984); ELLICKSON, *supra* note 28, at 159-162.

⁶³ AXELROD, *supra* note 62, at 27-54; ELLICKSON, *supra* note 28, at 164-65, 167-83, 225-29.

⁶⁴ OSTROM ET AL., *supra* note 28, at 56. See also Eyal Benvenisti, *Collective Action in the Utilization of Shared Freshwater: The Challenges of International Water Resources Law*, 90 AM. J. INT'L L. 384, 389-92 (1996) (discussing other game structures—such as the stag hunt and chicken—of likely relevance to water resource management).

rules, norms, or shared strategies that define collaborative institutions can facilitate effective cooperation and welfare-maximizing watershed policy.⁶⁵

Mark Imperial identifies three types of transaction costs that collaborative ecosystem management institutions might address: the costs "of searching for and organizing information" (information costs); the costs of "negotiating, monitoring and enforcing agreements" (coordination costs); and the costs of controlling strategic behavior by participants that may impede cooperative solutions (strategic costs).⁶⁶ To the extent they function to promote cooperation, a measure of the effectiveness of collaborative institutions is how well they reduce these costs. Institutional effectiveness might also be measured by whether the watershed has actually benefited from cooperative undertakings and whether the parties have been able to minimize costs.

IV. THE CHESAPEAKE BAY PROGRAM—UNDERSTANDING SUCCESS

The Chesapeake Bay Program is among the most sophisticated and sustained watershed management efforts. Commentators also generally recognize it as among the most successful.⁶⁷ Measured against our criteria for institutional effectiveness, it provides a useful indicator of both the promise and limitations of collaborative watershed institutions.

A. *The Watershed and the Program*

The Chesapeake Bay is a large estuary of the Susquehanna River with major tributaries feeding it from New York, Virginia, Maryland, Pennsylvania, and Washington, D.C. The main stem of the Susquehanna, which provides about fifty percent of the freshwater flow to the Bay, runs through Pennsylvania; the shoreline of the Bay itself is shared between Maryland and Virginia. These three states, along with the District of Columbia and the federal government (through the EPA and other agencies), are the major jurisdictions in interest on the Bay. The Bay's 64,000 square

⁶⁵ See John K. Setear, *Ozone, Iteration, and International Law*, 40 VA. J. INT'L L. 193, 200 (1999) (exploring development of collaborative institutions in global context); Imperial, *Institutional Analysis and Ecosystem-Based Management*, *supra* note 5, at 458-59.

⁶⁶ Imperial, *Institutional Analysis and Ecosystem-Based Management*, *supra* note 5, at 456.

⁶⁷ ROBERT W. ADLER ET AL., LESSONS FROM LARGE WATERSHED PROGRAMS (2000) (report to National Research Council, New Strategies 195) ("This voluntary approach with commitments to goals and deadlines has so far been successful."); Mark Imperial et al., *An Evolutionary Perspective on the Development and Assessment of the National Estuary Program*, 20 COASTAL MGMT. 311, 324 ("The success of the Chesapeake Bay Program makes it a good model for the management of regional water bodies."); Sabel et al., *supra* note 10, at 4, 7.

mile watershed is home to about 15.5 million people; of these, 14.6 million live in the District, Pennsylvania, Maryland and Virginia.⁶⁸

The origins of the Chesapeake Bay Program are variously described. Some commentators have stressed the role of the "broad citizen movement" that developed in response to deteriorating conditions in the Bay and resulted in formation of the Chesapeake Bay Foundation in 1966;⁶⁹ other accounts have stressed the political entrepreneurship of elected officials such as Senator Charles Mathias of Maryland.⁷⁰ In any event, Congress funded a six-year study conducted by the EPA to determine the status and causes of the Bay's decline. Completed in 1983, the study showed "declines in living resources and submerged aquatic vegetation, increased nutrient loadings [with corresponding reductions in dissolved oxygen levels critical for key aquatic species], and elevated levels of toxic contaminants."⁷¹ In the same year the study was released, Virginia, Maryland, Pennsylvania, the District of Columbia, EPA and the Chesapeake Bay Commission (an advisory body composed of state legislators, agency heads and citizen representatives) signed the Chesapeake Bay Agreement, pledging their cooperation to restore and protect the Bay.⁷² The signatories have amended the agreement three times since then, in 1987,⁷³ 1992,⁷⁴ and 2000.⁷⁵

These agreements establish a series of mutual goals, objectives and commitments to coordinate the efforts of the signatories. These include "governance" provisions, which commit the parties to meet annually, to support ongoing monitoring, research and data management programs, and

⁶⁸ Population Estimates and Projections for Portions of States in the Chesapeake Bay Drainage Basin, at <http://www.chesapeakebay.net/info/popstate.htm>.

⁶⁹ Sabel et al., *supra* note 10, at 7.

⁷⁰ Chesapeake Bay Program, *Chesapeake Bay Restoration*, at <http://www.chesapeakebay.net/info/restrtn.cfm>.

⁷¹ Imperial et al., *An Evolutionary Perspective on the Development and Assessment of the National Estuary Program*, *supra* note 67, at 323.

⁷² CHESAPEAKE BAY PROGRAM, 1983 CHESAPEAKE BAY AGREEMENT, at <http://www.chesapeakebay.net/pubs/1983chesapeakebayagreement.pdf>.

⁷³ CHESAPEAKE BAY PROGRAM, 1987 CHESAPEAKE BAY AGREEMENT, at <http://www.chesapeakebay.net/pubs/199.pdf>.

⁷⁴ CHESAPEAKE BAY PROGRAM, CHESAPEAKE BAY AGREEMENT 1992 AMENDMENTS, at <http://www.chesapeakebay.net/pubs/1992ChesapeakeBayAmendments.pdf>.

⁷⁵ Chesapeake Bay Program, *Chesapeake 2000: A Watershed Partnership*, at <http://www.chesapeakebay.net/agreement.htm>.

“to develop and maintain effective mechanisms for accountability.”⁷⁶ They also include policy provisions, perhaps the best known of which is the commitment, first announced in the 1987 Agreement, to achieve a forty percent reduction in nutrient loadings to the main stem of the Bay by 2000.⁷⁷

That undertaking was accompanied by related commitments to reduce non-point source pollution (agricultural runoff) and to control growth.⁷⁸ In the 1992 Agreement, the parties reaffirmed their commitment to reduce nutrient loadings by forty percent by 2000 and agreed to develop and begin implementation of tributary-specific nutrient strategies by August 1993 in order to meet that commitment.⁷⁹ In the 2000 Agreement, the forty percent reduction goal is reaffirmed once again, and the parties agree, in addition, to “correct the nutrient-and sediment-related problems in the Chesapeake Bay and its tidal tributaries” by 2010.⁸⁰ The 2000 Agreement specifies additional commitments (with performance measures and target dates) on sediment reduction, land use controls, habitat restoration (submerged aquatic vegetation, wetlands, riparian forest buffer), and increasing oyster populations.⁸¹ Each of the succeeding agreements has reaffirmed or revised prior commitments and added commitments to advance the underlying goals of preserving and restoring the Bay.

The progressively more elaborate and specific formulations among the parties provide some indication by themselves of successful institution-building in a cooperative setting.⁸² The successive adjustments in the parties’ objectives and commitments also indicate the ability to respond to new information about conditions in the watershed and the success (or failure) of prior program measures. Thus, they offer evidence that the

⁷⁶ 1987 CHESAPEAKE BAY AGREEMENT, *supra* note 73.

⁷⁷ The 2000 nutrient reduction goal was substantially achieved throughout most of the Bay, although reduction targets for lower tributaries on the Virginia side in the James and Rappahannock Rivers are not expected to be met for several years. Interview with William Matuszeski, Director, Chesapeake Bay Program (Feb. 10, 2000).

⁷⁸ See 1987 CHESAPEAKE BAY AGREEMENT, *supra* note 73 (stating an objective to “reduce the levels of nonpoint sources” and a commitment “to develop and adopt a basin-wide implementation strategy” for control of pollutants from “point and nonpoint sources” and a commitment to “adopt development policies and guidelines designed to reduce adverse impacts of the water quality and living resources of the Bay”).

⁷⁹ CHESAPEAKE BAY AGREEMENT: 1992 AMENDMENTS, *supra* note 74.

⁸⁰ *Chesapeake 2000: A Watershed Partnership*, *supra* note 75.

⁸¹ *Id.*

⁸² See Setear, *supra* note 65, at 197-204. See also Merrill, *supra* note 45, at 972-73 (explaining that as the mutual benefits of overcoming collective action problems “become progressively larger, the institutional response will become progressively more sophisticated (i.e., more costly)”).

program meets the criteria of learning and adaptability as well as cooperation.⁸³

The core decision-making body of the program is the Executive Council, which consists of the Governors of Virginia, Maryland, Pennsylvania, the Administrator of EPA, the Mayor of the District of Columbia, and the Chair of the Chesapeake Bay Commission. The Executive Council meets together at least once a year. By custom, at least until last year, the principals themselves are present and meet for some period of time by themselves, without staff.⁸⁴ This custom allows frank exchange to occur and facilitates bargaining.⁸⁵ These meetings typically result in Executive Council Directives, which are joint directives to the respective staffs of the states and the EPA to undertake implementing actions in furtherance of the agreed upon commitments and goals. Although the directives themselves are not legally enforceable, they function as executive orders within the states and provide further specificity of commitment against which the performance of the parties can be measured.⁸⁶

A number of advisory committees, informal relationships, and outreach efforts help connect the Executive Council to the program's various constituencies. Although the Executive Council is dominated by state and federal officials, it receives views directly from a Local Government Advisory Committee⁸⁷ and from a twenty-three member Citizens Advisory Committee,⁸⁸ which the program has characterized, in an

⁸³ See also text accompanying notes 11-16 *supra*.

⁸⁴ Interview with William Matuszeski, Director, Chesapeake Bay Program (Feb. 10, 2000).

⁸⁵ *Id.*

⁸⁶ The "collaborative" or "voluntary" nature of decision-making at the level of the Executive Council does not mean the absence of coercive elements in the program. Governmental parties with regulatory and tax-and-spend authorities, having agreed to a joint strategy, are expected to implement that strategy by exercising their respective authorities.

⁸⁷ Members on this committee, which represents the local governments in the Chesapeake Region, are appointed by the Governors of Maryland, Pennsylvania, and Virginia, and the Mayor of the District of Columbia. Chesapeake Bay Program, *Local Government Advisory Committee*, at <http://www.chesapeakebay.net/committee.htm>.

⁸⁸ See Chesapeake Bay Program, Citizens Advisory Committee, at <http://www.chesapeakebay.net/cac.htm>.

exuberant moment perhaps, as “the voice of the people.”⁸⁹ The program draws on the work of ten additional policy and technical committees as well as attendant subcommittees, work groups, and task forces.⁹⁰ Seeking to enhance the program’s effectiveness at the local level, the Executive Council recently launched a “Community Watershed Initiative,”⁹¹ premised on the dual notion that successful implementation of the program’s goals “will only happen if there is active involvement of the community at the subwatershed scale” and that strategies “must reflect the unique characteristics of the local watersheds and their human inhabitants.”⁹² The program has encouraged “tributary teams”⁹³ composed of local stakeholders and recruited citizen water quality monitors. The program also relies, for input, political support, and implementation assistance, on a host of non-governmental organizations at the regional and local levels. These NGOs include the Chesapeake Bay Foundation, an “advocacy organization with over 80,000 members throughout the Bay watershed and nationwide,”⁹⁴ and its counterpart, the Alliance for the Chesapeake Bay (Alliance), a non-advocacy group promoting “partnerships” among diverse interest groups.⁹⁵ The creation of the citizen monitor network was a joint undertaking of the program and the Alliance.

B. *Reducing Transaction Costs*

This overview of the Chesapeake Bay Program suggests its capacity to reduce all three types of transaction costs that we identified earlier (information, coordination, and strategic costs). In addition to the six-year study that catalyzed the initial agreement, ongoing investments by the program in scientific research, monitoring, and reporting facilitate continued cooperation. The program also leverages the collection and dissemination of data from other governmental bodies, academic institutions, and citizen

⁸⁹ CHESAPEAKE BAY PROGRAM, THE STATE OF THE CHESAPEAKE BAY: A REPORT TO THE CITIZENS OF THE BAY REGION 6 (1999).

⁹⁰ ADLER ET AL., *supra* note 67.

⁹¹ CHESAPEAKE EXECUTIVE COUNCIL, DIRECTIVE NO. 97-3: COMMUNITY WATERSHED INITIATIVE (Oct. 30, 1997) at <http://www.chesapeakebay.net/pubs/824.pdf>.

⁹² *Id.*

⁹³ Telephone interview with Richard Batiuk, Deputy Director, Chesapeake Bay Program (May 5, 2000).

⁹⁴ *Hearing on Estuaries and Coastal Quality, Before the House Comm. on Transportation and Infrastructure, Subcomm. on Water Resources*, 106th Cong. (1999) (testimony of William Baker, President, Chesapeake Bay Foundation) at <http://www.house.gov/transportation/ctisubs.html>.

⁹⁵ Alliance for the Chesapeake Bay, *Mission and Background*, at <http://www.acb-online.org/mission.htm>.

monitors. Its networked organizational form enhances its ability not only to disseminate centrally developed information, but also to collect information on conditions in local watersheds that might otherwise be difficult to obtain, although the results of citizen monitoring are not yet fully integrated with state and federal monitoring at larger scales.⁹⁶

The program also helps reduce coordination costs among the parties. As the core policymaking body, the Executive Council plays a dominant integrating role, but policy coordination occurs throughout the program's networked structure. The Chesapeake Bay Commission, for example, orchestrates legislative strategies across the three signatory states, including the successful campaign for joint adoption of a ban on phosphate in detergents. The EPA consults with, and negotiates among, some two dozen other federal agencies with diverse interests in the Bay,⁹⁷ as well as its state counterparts. Interactions within the program's elaborate committee structure, and between the committees and program staff, contribute to common understanding of issues and reduce political barriers to cooperation.⁹⁸ While varying in effectiveness across the watershed, tributary teams provide at least some measure of local coordination. Regional and local NGOs participate, monitor, pressure, inform, and mobilize the public. The program's tiered structure, involving federal, state, and local governments as well as NGOs at the regional and local watershed levels, helps coordinate efforts at multiple scales and ensure that decisions are made at the "right" level.⁹⁹

The program's coordinating capacity benefits from a permanent, expert program staff, including a director with substantial experience in high level intergovernmental negotiations. Of a program staff of about seventy-five people, only one-third are from the EPA, "with the remainder coming from other federal agencies, state agencies, and academic institutions."¹⁰⁰ Thus, the program office provides yet another forum for integration among

⁹⁶ Telephone interview with Richard Batiuk, Deputy Director, Chesapeake Bay Program Office (May 5, 2000).

⁹⁷ See AGREEMENT OF FEDERAL AGENCIES ON ECOSYSTEM MANAGEMENT IN THE CHESAPEAKE BAY (July 14, 1994) at <http://www.chesapeakebay.net/pubs/94fed.htm>.

⁹⁸ See Benvenisti, *supra* note 64, at 411-12 (discussing depoliticizing effects of interactions between "scientists and low-level officials" in international setting).

⁹⁹ Telephone interview with Richard Batiuk, Deputy Director, Chesapeake Bay Program Office (May 5, 2000).

¹⁰⁰ ADLER ET AL., *supra* note 67, at 87.

various state and federal agencies and the EPA. The staff develops options and explores potential grounds of agreement among the parties to pave the way for successful engagements among the members of the Executive Council, broker resolutions among the parties not warranting attention by the Council, and defuse issues that might otherwise become controversial among the parties. The staff also provides the means to monitor implementation, ensuring that instances of non-compliance are brought to the attention of others and dealt with.¹⁰¹

The relationship between the core decision-making group and these ancillary forums is complex and reciprocal. The self-constituting Executive Council reduces the collaborative challenge to manageable size and provides an authoritative framework that legitimizes, supports, and channels the efforts of hundreds of program participants. At the same time, the Council is both informed and constrained by what goes on in the program's ancillary forums.¹⁰²

Finally, although the Chesapeake Bay Agreement does not provide a means for its enforcement, the norms of mutual dependence and cooperation that have been developed in the course of the program offer some protection against forms of strategic behavior such as free riding.¹⁰³ The custom of yearly face-to-face (and private) meetings among the principals on the Council supports the maintenance of a stable cooperative regime. Principals may be subject to personal rebuke and possible retaliation by their peers on the Council if they are seen to have defaulted on their responsibilities. Failure of principals to abide by program commitments against an established expectation of cooperation may also have political implications within their home jurisdictions. Norms of cooperation evidenced in Council deliberations reinforce and are reinforced by cooperative behavior in the program's many ancillary forums.¹⁰⁴

The political force of regional program commitments was evident recently in Virginia's enactment of legislation "to achieve no net loss" of wetlands.¹⁰⁵ The program established a no-net-loss goal in 1988.¹⁰⁶ Both

¹⁰¹ See David G. LeMarquand, *Preconditions to Cooperation in Canada-United States Boundary Waters*, 26 NAT. RESOURCES J. 221, 232 (1986) (discussing staff's role in addressing issues "before they become too politicized").

¹⁰² I am indebted to Bradley Karkkainen for his suggestions in fleshing out the depth and complexity of the coordinating process within the program.

¹⁰³ *Chesapeake 2000: A Watershed Partnership*, *supra* note 75.

¹⁰⁴ See text accompanying notes 97-102 *supra*.

¹⁰⁵ VA. SB 648, (amending VA. CODE ANN. § 62.1-44.29 (Michie 1998)), available at <http://www.leg1.state.va.us/cgi-bin/legp504exe?001+fultCHAP1032>.

¹⁰⁶ Chesapeake Bay Program, Wetlands Restoration and Preservation, at <http://www.chesapeakebay/net/wet.htm>.

Pennsylvania and Maryland enacted legislation in furtherance of this goal, but Virginia did not.¹⁰⁷ As long as the federal wetlands program, which also had adopted a goal of “no net loss,”¹⁰⁸ was effective in Virginia, the absence of state legislation was not critical. In two federal courts of appeals cases, decided in 1997¹⁰⁹ and 1998,¹¹⁰ however, the scope of the federal wetlands program was significantly curtailed, increasing the vulnerability of Virginia wetlands and prompting a vigorous public debate over whether state legislation was necessary to fill the gaps and, if so, what kind of legislation it should be. Arguments by proponents for a strong, no-net-loss state regulatory program invoked the Baywide policy and the legislation already adopted by Maryland and Pennsylvania. *The Roanoke Times* editorialized that Virginia was “lagging shamefully behind” its “partners in cleaning up the Chesapeake Bay.”¹¹¹ The legislature passed a strong, no-net-loss version of the legislation, and the Governor, after remaining studiously non-committal during the legislative debates, signed it with minor amendments.¹¹² Thus, advocates for strong state wetlands legislation successfully leveraged regional commitments, along with other arguments for passage, in the political debate.

The Chesapeake Bay Program illustrates the “reinvented” role of federal agencies envisioned by place-based environmental protection—particularly as it involves facilitation (reducing transaction costs) among potentially cooperating parties. In addition to the EPA as a member of the Executive Council, a number of federal agencies have contributed to this effort. Federal funds underwrote the initial studies that led to the creation of

¹⁰⁷ Caleb Jaffe, Note, *Regulating Our Common Wetlands: An Analysis of the Birth of the Virginia Nontidal Wetlands Resources Act of 2000* at 28-29 (May 2000) (paper on file with author).

¹⁰⁸ 33 U.S.C. § 1251 (1994).

¹⁰⁹ See *United States v. Wilson*, 133 F.3d 251 (4th Cir. 1997) (holding that authority for federal wetlands protection does not extend to “isolated” wetlands; although the United States has not acquiesced in the Fourth Circuit’s ruling outside the court’s jurisdiction, states in the Fourth Circuit, like Virginia, are affected).

¹¹⁰ See *National Mining Association v. U.S. Army Corps of Engineers*, 145 F.3d 1399 (D.C. Cir. 1998) (holding that federal wetlands regulation does not extend to excavation or channelization of wetlands but is limited to discharge of dredged or fill material).

¹¹¹ Editorial, *A Wetlands Protection Plan Drained of its Wetlands*, ROANOKE TIMES, Feb. 1, 2000. For other public statements to the same effect, see Jaffe, *supra* note 107 at 28-31.

¹¹² VA. SB 648, at <http://www.leg1.state.va.us/cgi-bin/legp504.exe?001+fultCHAP1032>.

the program,¹¹³ and they continue to support research and monitoring of the Bay, educational efforts, and program office staffing—all essential components of the collaborative success.¹¹⁴ Federal resources and authorities also play a role in encouraging (or disciplining) parties that might otherwise be disinclined to carry out their agreements and in catalyzing further cooperative undertakings among the parties. For example, under the federal Clean Water Act, for water bodies not meeting water quality standards (impaired waters), states must establish total maximum daily pollutant loadings (TMDLs) consistent with attaining the standards and assign those loadings among contributing sources.¹¹⁵ TMDLs for the main stem of the Bay, portions of which are listed as impaired,¹¹⁶ must be completed by 2010.¹¹⁷ In response, Executive Council members have agreed upon an aggressive joint strategy to meet water quality standards in the main stem of the Bay before the deadline, thus rendering the federally mandated TMDLs unnecessary.¹¹⁸

C. *Trouble in Paradise*

Despite evidence of success, the Chesapeake Bay Program has encountered difficulties, which suggest the limits of collaboration on the Bay. In particular, the program has struggled to control strategic behavior, particularly in the area of land use, which is the traditional prerogative of state and local governments and over which the federal government has little regulatory leverage to induce cooperative behavior. The 1987 Agreement adopted a goal to “plan for and manage the adverse environmental effects of human population growth and land development in the Chesapeake Bay Watershed.”¹¹⁹ Both Virginia and Maryland adopted legislation in fulfillment of this goal.¹²⁰ Virginia’s statute, the Chesapeake Bay Preservation Act, creates a land management system for Tidewater Virginia.

¹¹³ Imperial notes that a “major weakness [in the Chesapeake Bay Program] as a model for future programs is the extensive expenditure on scientific studies prior to management action. The level of funding was unrealistic in contemporary, state-led estuarine efforts.” Imperial, *Evolutionary Perspective on the National Estuary Program*, *supra* note 67, at 325.

¹¹⁴ The program receives about \$20 million a year through EPA’s budget. EPA, FISCAL YEAR 2000 ANNUAL PLAN (Jan. 1999) at <http://www.epa.gov/ocfo/budget/2000/2000bib.pdf>.

¹¹⁵ 33 U.S.C. § 1313(d) (1994).

¹¹⁶ 33 U.S.C. §1267 (1994).

¹¹⁷ See *Chesapeake 2000: A Watershed Partnership*, *supra* note 75.

¹¹⁸ *Id.*

¹¹⁹ 1987 CHESAPEAKE BAY AGREEMENT, *supra* note 73.

¹²⁰ See VA. CODE ANN. § 10.1-21001-2115 (Michie 1998); MD. CODE ANN., NAT. RES. II § 8-1801 to 1816 (1990).

"The statute calls for a cooperative approach between state and local government, with most of the responsibility for implementation falling to local governing bodies."¹²¹ The Executive Director of the Virginia board charged under the statute with overseeing implementation has characterized his agency as a "paper tiger," without the resources or legal authority to secure compliance by local governments.¹²² The Maryland statute, the Chesapeake Bay Critical Area Protection Program, while similar in many ways to Virginia's, gives the state tighter control over planning and implementation.¹²³

The more hands-off approach adopted by Virginia might be attributed to differences in the political cultures of the two states—Virginians being more concerned about private property rights, with an emphasis on personal stewardship, while Marylanders are more comfortable with government regulation. It is also possible to see evidence in this story of free riding by Virginia, as it benefits from reduced development in Maryland, while at the same time failing to produce its share of reductions. These problems have led at least one commentator to recommend creation of "a compact granting regulatory authority over the Bay area to an interstate agency."¹²⁴ And so back to the future.

In 1999, in an effort to shore up the land use commitments of the parties, Maryland and other members proposed that each state agree to reduce the rate of development of forest and agricultural lands by at least thirty percent within ten years.¹²⁵ Virginia refused to accept the proposal, arguing that Virginia has more open space, or fewer acres of developed land,

¹²¹ Note, *The Chesapeake Bay Preservation Act: The Problem with State Land Regulation of Interstate Resources*, 31 WM. & MARY L. REV. 735, 749 (1990).

¹²² Scott Harper, "Portsmouth Ignores Rules on Environmental Studies," VIRGINIA-PILOT, Sept. 11, 2000 at B1. Virginia has since taken steps to enforce the statute's requirements, suing one municipality for an insufficient Bay Act ordinance, see Scott Harper, "Panel Votes to Sue Portsmouth: State Board Says City Has Ignored Chesapeake Bay Preservation Act," VIRGINIA-PILOT, Sept. 19, 2000 at B1, and launching a formal review of another's implementation scheme, Scott Harper and Lewis Kauskopf, "Chesapeake Development Near Water Scrutinized," VIRGINIA-PILOT, Sept. 23, 2000 at B1).

¹²³ *Id.* at 753.

¹²⁴ *Id.* at 771.

¹²⁵ Steve Twomey, *A 10-Year Plan for Cleaning the Bay*, WASH. POST, Dec. 9, 1999, at B1.

than Maryland or Pennsylvania,¹²⁶ and that the proposal would also usurp local government authority over land use decisions.¹²⁷ A draft of the proposed agreement, noting Virginia's non-concurrence, became public, contrary to an unwritten rule of confidentiality in negotiations among the parties. For the first time in the history of the Chesapeake Bay Agreement, the Governor of Virginia declined to personally attend the meeting of the Executive Council in December 1999.¹²⁸ Later, under pressure from other partners to the Agreement as well as from the Chesapeake Bay Foundation and other NGOs,¹²⁹ the Governor of Virginia agreed to accept an altered version of the provision, which pushes the deadline to 2012 and applies the development control target to the Chesapeake watershed as a whole, not to individual states.¹³⁰ Although this provision represents some progress in cooperative growth management in the watershed, it puts off for future negotiations the key issue of allocation of specific responsibilities among the states. Without the assignment of measurable obligations specific to each of the parties, the problem of growth management in the region—assuming, as the parties seem to, that it is a problem that should be addressed collectively—has not been solved.

D. *Environmental Effectiveness*

Notwithstanding the difficulties with Virginia on the issue of land use, our account indicates that the Chesapeake Bay Program has enhanced cooperation among the parties. It might also be asked, though, in evaluating the program, whether cooperation has actually changed conditions in the Bay, compared to what would have been the case had the parties been left to their own devices. The evidence on this question is unclear. There is general agreement that the Bay is at least marginally better off now than it was when the program was started. The Chesapeake Bay Foundation rates the Bay's "condition at 28, up from 23 on a scale of 100, with 100 being

¹²⁶ William C. Baker, *Virginia Should Sign Agreement with Proposed Land Goals*, RICHMOND TIMES-DISPATCH, Mar. 22, 2000, at A15.

¹²⁷ Lawrence Latane III, *Virginia Opposes Key Goal for Bay*, RICHMOND TIMES-DISPATCH, Dec. 9, 1999, at B4.

¹²⁸ Patrick Lackey, *Mushy Plans for Cleaning up the Bay*, THE VIRGINIAN-PILOT (Norfolk, VA), Dec. 9, 1999, at B11, available at LEXIS, News Group File.

¹²⁹ William Baker, *supra* note 126, at A15.

¹³⁰ *Chesapeake 2000: A Watershed Partnership*, *supra* note 75. The final agreement also pledges to preserve from development twenty percent of the land area in the watershed by 2010. *Id.*

equal to the bay's pristine status three centuries ago."¹³¹ In its recent report on the state of the Bay, the Bay Program offers the following assessment:

The bottom line is that . . . the Bay and many of its living resources have come a long way since the 1970s. The Bay can be considered a patient that's just been released from intensive care and is recovering. Some of its vital signs are improving, but we need to keep a very close watch on all the signals.¹³²

Neither of these characterizations, however, answers the question of whether, in the absence of a program, this incremental improvement in the Bay's health would have occurred.

If one focuses on the Program's top priority since 1987, reducing phosphorous and nitrogen loadings by forty percent by the year 2000,¹³³ the picture is somewhat clearer. The targeted reduction was achieved for phosphorous, and nitrogen loadings have declined, although the forty percent reduction was not achieved.¹³⁴ Jaqueline Savitz argues that "[m]ost improvements in the Chesapeake Bay are attributable not to the Bay Program, but to the Clean Water Act permitting program, bans on phosphate detergents enacted by state governments . . . and sewage treatment plant upgrades."¹³⁵ The evidence seems to the contrary. The enactment of the phosphate ban by the several states, coordinated by the Chesapeake Bay Commission, was driven not by federally enforceable water quality standards but by the program's nutrient reduction goals.¹³⁶ Similarly, upgrades to advanced treatment by sewage treatment plants in the region took place in spite of a national policy discouraging such treatment, and was aided by advances in treatment technology (biological nutrient removal)

¹³¹ Twomey, *supra* note 125, at B1.

¹³² CHESAPEAKE BAY PROGRAM: THE STATE OF THE CHESAPEAKE BAY, *supra* note 89, at Introduction.

¹³³ 1987 CHESAPEAKE BAY AGREEMENT, *supra* note 73.

¹³⁴ CHESAPEAKE BAY PROGRAM, CHESAPEAKE 2000 AND THE BAY: WHERE ARE WE AND WHERE ARE WE GOING? (2000) at <http://www.chesapeakebay.net/pubs/snapc2k.pdf>.

¹³⁵ Jacqueline Savitz, *Compensating Citizens*, 24 BOSTON REV. 5 (Oct.-Nov. 1999), at 17.

¹³⁶ Telephone interview with Richard Batiuk, Deputy Director, Chesapeake Bay Program Office (June 16, 2000).

funded by the program.¹³⁷ Although sewage treatment plants are point sources and thus might have been required by federal law to install advanced treatment if necessary to meet water quality standards, water quality standards for nutrients in the Bay do not exist and may be years in the future. Although it might be argued that, in the absence of a cooperative program, EPA would have been more aggressive in establishing and implementing comprehensive water quality standards for the Bay, the Agency's historic difficulty in dealing with transboundary pollution problems, as well as substantial technical and scientific obstacles, would indicate otherwise. Thus, the program should be credited with improvements over what might have occurred in its absence. Significantly, however, the major remaining source of phosphorous and nitrogen loadings to the Bay is nonpoint source pollution.¹³⁸ The ability of the program to achieve additional reductions through cooperatively established nonpoint source control measures remains to be determined.¹³⁹

E. Cost Effectiveness

Another measure of the Chesapeake Bay Program's effectiveness is the ability to reduce implementation costs. The program's flexible implementation scheme—allowing each state to select the measures for fulfilling its commitments and reserving flexibility at the local level—might enhance cost-effectiveness as well as political acceptability. But Bruce Ackerman and Richard Stewart observe that regional institutions can reduce the costs of environmental measures even further by providing markets in pollution rights within a watershed or airshed.¹⁴⁰ Having set a limit on total loadings of a pollutant and having allocated rights to discharge specific amounts of that pollutant to sources in the watershed consistent with meeting the overall limit, a watershed body might allow sources to buy and sell those rights among themselves. A regional trading regime would be feasible for pollutants, such as nutrients, which have basin-wide effects.¹⁴¹ Trades could be expected to shift discharges of the pollutant from sources

¹³⁷ *Id.*

¹³⁸ CHESAPEAKE BAY PROGRAM: THE STATE OF THE CHESAPEAKE BAY, *supra* note 89, at 24 (listing sources of nitrogen pollution to the Bay as nonpoint source (fifty-six percent), point source (twenty-two percent), and atmospheric deposition (twenty-one percent) and sources of phosphorous pollution as nonpoint source (sixty-six percent), point source (twenty-five percent), and atmospheric (nine percent)).

¹³⁹ For sources of atmospheric deposition located outside the watershed, the program is largely dependent on federal Clean Air Act controls.

¹⁴⁰ See Ackerman & Stewart, *supra* note 41.

¹⁴¹ See ADLER ET AL., *supra* note 67, at 92.

with high control costs to those with low control costs, because it would be cheaper for high cost controllers to purchase additional rights from low cost controllers than to make the additional reductions themselves. This would lower the overall costs of control, while ensuring the same level of environmental benefits. The same might be the case for markets for water withdrawals or habitat destruction (e.g., wetlands mitigation banks). Multi-state trading schemes can be mandated by federal legislation, as was the case with the acid rain provisions of 1990.¹⁴² However, regional institutions like the Chesapeake Bay Program, with their scientific data and models, professional staff, and cooperative traditions, offer an important alternative breeding ground for these regimes.

Despite the potential benefits (in cost savings) to its regional constituency, the Chesapeake Bay Program has not established a trading regime; however, federal controls on point source discharges may limit the scope of trading, undermining the development of well-functioning allowance markets. A program task force is now exploring trading options, which may offer the next level of program effectiveness.

IV. GENERALIZING FROM THE CHESAPEAKE

The tantalizing question that arises from an examination of the Chesapeake Bay Program, or other relatively successful collaborative programs, is why are these programs successful, when others are not? Can we predict the settings in which collaborative forms of watershed management will work? These are questions that, as Elinor Ostrom has admonished regarding the management of common pool resources, we do not have the ability to answer satisfactorily.¹⁴³ Multiple factors seem to contribute to the success or failure of these institutions, and any definitive understanding of the interactions among these factors, or their relative influence, has proved elusive.

While acknowledging these limitations, I offer here a tentative explanation of why the Chesapeake Bay Program seems to work, why other collaborative watershed management efforts do not, and what this suggests about the role of central governments in the "watershed approach." In this, I am much indebted to Thomas Merrill's account of the dynamics of multi-

¹⁴² 42 U.S.C. §§ 7401, 7404, 7415, 7429, 7601, 7604, 7615, 7651, 7661e (2000).

¹⁴³ See generally OSTROM, *supra* note 2.

jurisdictional environmental problem-solving in the context of transboundary pollution.¹⁴⁴

I begin with the hypothesis that the difficulty of establishing cooperative watershed institutions will be proportional to the number of jurisdictions that must cooperate and the strength and diversity of interests among those jurisdictions, including the presence or absence of common environmental norms.¹⁴⁵ As we have seen, successful collaborative regimes reduce transaction costs and foster results that make all of the parties better off than they would be in the absence of cooperation. The elaborateness of these regimes (that is, the amount of resources that the parties were willing to invest in them) would be directly related to the benefits that the parties could expect to flow from cooperation, i.e., the strength of their interest in seeing watershed problems addressed. Thus, more important issues (with a high payoff from cooperative solutions) would support a vigorous commitment to collaborative institutions, whereas less important issues (with a lower payoff from cooperation) would support less investment. Thus, not every problem will warrant action on a basin-wide or even a local watershed scale. Assuming all interests have been taken into account, including the potential interests of those outside the watershed, this may be properly understood not as a barrier to collaborative efforts, but simply as an indication of whether, and to what extent, they are worth supporting.

Cooperation will also become more difficult as the number of parties increases.¹⁴⁶ This is a function of the greater likelihood of holdouts or free riders that may undermine the ability to reach or sustain an agreement and the greater difficulty in establishing norms of cooperation in larger groups. In large interstate watersheds, like the Chesapeake, which may include hundreds or thousands of local jurisdictions and millions of citizens, this problem can be managed by limiting the core deliberative group to state and federal officials. These officials would serve as surrogates for their respective constituencies and also have a degree of coercive authority within their respective jurisdictions to effectuate their agreements. This representational structure would reduce the collective action costs and allow for the evolution of norms of cooperation among the principals, although it would reduce direct citizen participation in watershed governance. In

¹⁴⁴ See Merrill, *supra* note 45, at 972.

¹⁴⁵ For comparable formulations of factors affecting emergence of collaborative regimes, see OSTRUM, *GOVERNING THE COMMONS*, *supra* note 2, at 211; Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 590 (1996); Merrill, *supra* note 45, at 976-84.

¹⁴⁶ See OLSON, *supra* note 61, at 51-65; Merrill, *supra* note 45, at 975.

watersheds composed of many co-equal jurisdictions, however, numerosity may still present problems.¹⁴⁷

Finally, cooperation is more difficult if there are conflicting interests among the parties. In the prisoner's dilemma game, each party is assumed to have similar interests at stake; thus, the cooperative solution makes both parties better off than they would be otherwise. In what Merrill styles the "cooperator's loss game," however, the interests of the parties are conflicting.¹⁴⁸

[E]ven if a strategy of mutual cooperation would increase the parties' joint welfare, one party will always be worse off cooperating than it will be if it refuses to cooperate. . . . Non-cooperation is always the preferred strategy for the player who will be worse off, unless some mechanism can be devised for transferring part of the collective gains to this player in order to induce him to switch to a cooperative strategy.¹⁴⁹

In watershed management, conflicting interests among jurisdictions are often due to the fact that water runs downhill. Pollution source (e.g., upstream) and recipient (e.g., downstream) jurisdictions may assess issues differently: in the absence of controls, the upstream jurisdiction may be able to externalize all or most of the costs of pollution on the downstream jurisdiction. With controls, the downstream jurisdiction may reap the benefits while all or most of the costs are born by the upstream jurisdiction. Thus, to the extent that reducing pollution will entail costs to it, an upstream jurisdiction may have little or no incentive to cooperate in clean-up efforts. Similar asymmetries are likely on issues of water quantity where water users will feel the costs of upstream water withdrawals entirely or mostly downstream (including water-dependent flora and fauna). Divergence of interests may also occur if different jurisdictions place a significantly

¹⁴⁷ See OLSON, *supra* note 61, at 54 (citing findings from various studies distinguishing effectiveness of groups of five to seven members from that of groups of twelve to fourteen members); Stephen M. Nickelsburg, Note, *Mere Volunteers? The Promise and Limits of Community-Based Environmental Protection*, 84 VA. L. REV. 1371, 1387-89 (1998).

¹⁴⁸ Merrill, *supra* note 45, at 974.

¹⁴⁹ *Id.*

different value on protecting the resource at issue.¹⁵⁰ The problem of conflicting interests may be exacerbated by the participation of central authorities in the cooperative effort, representing interests of those outside the watershed as well as within it.

How well does our hypothesis (positing the number of jurisdictions and the strength and diversity of interests among them as the pivotal factors) explain the apparent success of the Chesapeake Bay Program? In that program, the core policymaking group at the basin-wide level is relatively small in number (i.e., the six members of the Executive Council). Basin states with marginal interests in the Bay (New York, West Virginia, Delaware), and marginal impacts on it, are not included in that group, although the program works with these states to reduce their impacts. Local governments, non-governmental organizations, and individual citizens are likewise not included; their interests are represented through the members of the Council or the various advisory committees and other groups that inform its decision-making. Although, as we have seen, cooperative efforts occur throughout the interconnected forums that make up the program, the core group plays an essential role in legitimizing, focusing, and supporting collaborative activities. The literature suggests that five to seven members may be an optimal number for an "action group."¹⁵¹ Watershed management efforts involving a larger number of jurisdictions, such as the Great Lakes Program (involving eight U.S. states and two Canadian provinces), have shown success.¹⁵² But watersheds with a much larger number of jurisdictions, such as the Mississippi River, which drains all or part of more

¹⁵⁰ See Esty, *supra* note 19, at 590-91 (on importance of "common environmental norms" for cooperative action).

¹⁵¹ See OLSON, *supra* note 61, at 54.

¹⁵² At the highest level, the Great Lakes effort can be understood as a two-party cooperative undertaking, in which the United States and Canada have agreed on broad goals for the Great Lakes Basin (e.g., "restoring the chemical, physical and biological integrity of the Great Lakes Basin Ecosystem") and charged the International Joint Commission (IJC) to assist in implementing their agreement. To assist it in this task, the IJC in turn has appointed a Great Lakes Water Quality Board, with representatives from each of the eight states and two provinces in the watershed. See *Great Lakes Water Quality Board Responsibilities*, IJC Directive No. 1 to the Great Lakes Water Quality Board (March 14, 1980). Policy coordination among localities, states, tribes, and federal authorities within the United States' portion of the watershed is facilitated through the Great Lakes National Program Office. See 33 U.S.C. § 1268 (1994). For the Great Lakes, perhaps in view of its international commitment, the United States government has adopted topdown approaches not present in the Chesapeake Bay Program, such as the requirement that EPA issue federal water quality "guidance," 33 U.S.C. § 1268(c)(2) (1994), constraining state water quality standards and "implementation procedures" in the Basin.

than two dozen states and portions of Canada as well, have had great difficulty in establishing effective cooperation.¹⁵³

The Chesapeake Bay ecosystem is also seen as a nationally prominent, highly valued, at-risk resource, which—consistent with our hypothesis—explains the elaborate and relatively costly institutional structure supported by both state and federal resources. Even with expenditures of tens of millions of dollars per year to maintain the organizational and information infrastructure of the program, the benefits generated by the program could be expected to justify the costs. Other collaborative efforts of comparable geographical scope and complexity have not received the same level of support. Lower investments in these programs may simply reflect that the parties to those undertakings believe they have less at stake. For example, the Gulf of Mexico Program is a state-federal partnership to protect and restore the aquatic ecosystem of the Gulf of Mexico, a resource of ecological and economic value that arguably equals or exceeds the Chesapeake Bay's.¹⁵⁴ Yet EPA's annual budgeted contribution to that program is less than a third of its contribution to the Chesapeake Bay Program, and the five states that ring the Gulf have invested considerably less in their joint effort than their Chesapeake counterparts in the Bay Program.¹⁵⁵ This difference may be due to the lack of a compelling sense of environmental risk Gulf-wide or of a strong public identification with the resource of the sort that characterizes the Chesapeake Bay. (It may also be due to recognition that some of the Gulf's water quality problems have their primary source in states along the Mississippi River and other tributaries to the Gulf that are not participants in the program.¹⁵⁶) Federal investment in nationally less prominent watersheds is

¹⁵³ In the 1998 St. Louis Compact among EPA offices involved in the Mississippi, the signatories noted: "The scale of the greater basin is such that it is difficult for those managing government programs, much less the millions of enterprises and people affecting the resource, to put their actions in a system-wide context." U.S. Environmental Protection Agency, *St. Louis Compact*, at <http://www.epa.gov/owow/watershed/compact.html>.

¹⁵⁴ Mary L. Belefski & Larinda Tervelt Norton, *Hypoxia in the Gulf of Mexico: A Historical and Policy Perspective*, 12 TUL. ENVTL. L.J. 331, 333 (1999).

¹⁵⁵ EPA's budgeted funds for the Gulf of Mexico Program are \$4.2M for FY2000. See EPA's Summary of Budget, at <http://www.epa.gov/ocfo/budget/2000/2000bib.pdf>. Governors of the Gulf States do not participate personally in program deliberations, as they do in the Chesapeake. See Belefski & Norton, *supra* note 154, at 339.

¹⁵⁶ See *infra* text accompanying notes 159-164.

predictably even less. For efforts not among those specifically earmarked for assistance in its budget, the EPA has appropriated only \$5 million for watershed assistance grants to be distributed nationwide.¹⁵⁷

All this assumes that investments by the parties in collaborative programs reflect their assessment of the potential benefits to their respective publics. Distortions in the political process may undermine this assumption. As I describe later in the paper, however, competition for governmental assistance among watershed initiatives may contribute to a deliberative process that minimizes such distortions.

We have seen evidence that the value placed on protecting the Chesapeake Bay may differ among the jurisdictions involved the program, which raises the last factor—diversity of interests. The Chesapeake Bay has upstream (e.g., Pennsylvania) and downstream (e.g., Maryland, Virginia) jurisdictions, but the potential differences in interests among them are more complex than their physical alignment suggests.¹⁵⁸ Pennsylvania, for example, is seen as cooperating in measures to protect the Bay. One can hypothesize that efforts by it to reduce pollution in the Susquehanna and its tributaries will result in environmental improvements in Pennsylvania as well as on the main stem of the Bay, although the oxygen-depleting effects of nutrient loadings from Pennsylvania are felt predominantly in the Bay. Also, as appreciators and sometime users of the Bay, which is readily accessible to many of them, Pennsylvanians will derive benefits from improvements downstream. Thus, Pennsylvania's upstream status allows it only to partially externalize the costs of its pollution and significant incentives remain for it to participate. (Federal subsidies for sewage treatment plant upgrades and non-point source programs may also have offset some of the costs of improvements by Pennsylvania as well as other states in the basin.)¹⁵⁹

On the main stem of the Bay, Maryland is upstream of Virginia. However, this position may be less significant, in terms of our hypothesis, for an estuary such as the Chesapeake, where tidal action means that water moves both upstream and downstream, than for a free running river.¹⁶⁰ Each

¹⁵⁷ EPA, FISCAL YEAR 200 BUDGET (Jan. 1999) at <http://www.epa.gov/ofco/budget> (amount does not include National Estuary Program watersheds).

¹⁵⁸ See Merrill, *supra* note 45, at 969-970 (discussing varying interest of states in regulating multi-jurisdictional environmental issues).

¹⁵⁹ Federal funds (subsidies) for elements of the pollution reduction programs advanced by the program not only through appropriations earmarked for the Chesapeake Bay but also through Title II of the Clean Water Act (subsidizing sewage treatment plant construction and upgrades), Federal Water Pollution Control Act of 1977 §319(h), 33 U.S.C. § 1281(1994) (grants to states for nonpoint source controls), 33 U.S.C. § 1329(h) (1994).

¹⁶⁰ Freshwater drainage from the Bay's tributaries "tends to flow seaward along the surface of the estuary while heavier saline water from the ocean travels northward along the

state may be able to externalize some of the costs of its pollution on the other, but each is also adversely affected by pollution from the other. Thus, each has incentives to cooperate in a mutual pollution reduction scheme that produces net benefits for both states.

From our account of interactions among the parties in the Chesapeake Bay agreement, however, Virginia appears to behave *vis-à-vis* Pennsylvania and Maryland more like an upstream state might be expected to behave, lagging in fulfilling its commitments and resisting additional commitments that might impose significant costs.¹⁶¹ It is possible, as we have suggested, that this behavior simply represents efforts by Virginia to free ride on the efforts of Pennsylvania and Maryland. It is also possible that it represents conflicting interests occasioned not by a different physical relationship to the resource, but by a different relative value that the citizens of Virginia or their representatives in state government express for the resource itself. This different valuation may reflect less collective concern for the environment or, in what may amount to the same thing, greater concern for competing values, such as property rights and economic development. Virginia may believe that protective measures advanced by the other parties impose costs on it that more than offset the benefits it receives as a downstream state. In resisting the new provision of the Bay Agreement calling for specific reduction in the rate of conversions of farmland and woodlands, for example, the Virginia Secretary for Natural Resources argued that Virginia has more open space than either Maryland or Pennsylvania,¹⁶² implying that Virginia would be relatively disadvantaged in realizing economic gains from development that were already being enjoyed by Maryland and Pennsylvania. The factual basis for those claims has been disputed,¹⁶³ but it does appear that Virginia has been developing at a greater rate than Maryland or Pennsylvania and thus may view itself as differently affected by the percentage reduction measure and a net loser

bottom." In the Chesapeake Bay, friction between the layers "cause[s] mixing at all depths and . . . an exchange of water across the density barriers." CHRISTOPHER P. WHITE, CHESAPEAKE BAY FIELD GUIDE 17 (1989).

¹⁶¹ William Baker, *Virginia Should Sign Agreement with Proposed Land Goals*, THE RICHMOND TIMES-DISPATCH, Mar. 22, 2000, at A15.

¹⁶² *Id.*

¹⁶³ *Id.*

under it.¹⁶⁴ In any event, Virginia's behavior indicates the extent to which the perception, by one of the parties, of a divergence of interests may complicate the collaborative process.¹⁶⁵ Just as importantly, however, the Chesapeake Bay Program, which has enjoyed success notwithstanding the difficulties we have identified, illustrates that compatibility or conflicting interests are matters of degree. Thus, even in the absence of perfect compatibility of interests, mutually beneficial cooperation can occur.

More profoundly conflicting interests may explain the lack of any credible interstate effort, so far at least, to address the problem of agricultural pollution in the Mississippi River Basin.¹⁶⁶ In that region, nitrate-rich runoff from fertilized fields in the cornbelt states of Minnesota, Iowa, Illinois, Indiana, and Ohio contributes substantially to a seasonal, New Jersey-sized, low-dissolved-oxygen zone in the Gulf of Mexico.¹⁶⁷ Nutrient run-off causes local water quality problems,¹⁶⁸ but the dominant oxygen-depleting effects are felt far downstream in the Gulf.¹⁶⁹ Although these states occupy a position similar in some ways to Pennsylvania's in the case of the Chesapeake, they are more remote from the Gulf and have less at stake in its protection.¹⁷⁰ In the absence of a cost-shifting mechanism, they would also bear a proportionately much greater share of the total costs of effective regional controls, which will be substantial,¹⁷¹ than does

¹⁶⁴ Population figures for the three states show that in the last ten years the population of Virginians in the Basin has increased at a greater rate (fourteen percent) than the population of Marylanders (eleven percent) or Pennsylvanians (five percent). *Population Estimates and Projections for Portions of States in the Chesapeake Bay Drainage Basin*, at <http://www.chesapeakebay.net/info/popstate.htm>.

¹⁶⁵ It is also possible that partisan political considerations may be at work, as Virginia's Governor is a Republican and Maryland's Governor is a Democrat, as is the current EPA leadership. This possibility is discounted, however, by the fact that Pennsylvania's Governor, who has supported the land use restriction, is a Republican.

¹⁶⁶ See text accompanying note 153 *supra*.

¹⁶⁷ NAT'L SCI. & TECH. COUNCIL, COMM. ON ENV'T & NAT. RESOURCES, AN INTEGRATED ASSESSMENT: HYPOXIA IN THE NORTHERN GULF OF MEXICO 22-23 (2000).

¹⁶⁸ See *id.* at 25-26.

¹⁶⁹ For an account of a similar situation at a smaller scale, see Esty, *supra* note 19, at 590 (Connecticut River).

¹⁷⁰ See Mary L. Belefski & Larinda Tervelt Norton, *Hypoxia in the Gulf of Mexico: A Historical and Policy Perspective*, 12 TUL. ENVTL. L.J. 331, 346 (1999) (noting that hypoxia in the Gulf is "difficult to connect sociologically and emotionally with constituencies located far from the Gulf").

¹⁷¹ NAT'L SCI. & TECH. COUNCIL, *supra* note 167, at 37-45.

Pennsylvania. Thus they are much more likely than Pennsylvania to see themselves as net losers in a cooperative arrangement.¹⁷²

In a case of conflicting interests, a downstream state still might enter into a Coasean bargain¹⁷³ with an upstream state. A bargain might be based on payments by the downstream state that would serve to make both parties better off.¹⁷⁴ It may be difficult, however, to reduce watershed protection to a dollar amount,¹⁷⁵ and the downstream jurisdiction may find such a payment politically unpalatable. Alternatively, the bargain might involve a trade on other issues, where the states have other resource or economic issues in common. In the case of a multi-issue watershed protection effort such as the Chesapeake Bay program, there might be opportunities for trades on different aspects of the Bay's management (e.g., trade-offs between pollution control measures and quotas for the taking of living resources such as oysters or crabs¹⁷⁶). Where the watershed is dominated by a single problem, however, and where the states do not have other issues on which to trade, a bargain between co-equal jurisdictions might not occur, even though a cooperative solution would leave the parties better off overall.

This analysis is consistent with our hypothesis that, in multi-jurisdictional watersheds, collaborative successes are more likely if small numbers of jurisdictions are involved, if the resource is important and

¹⁷² The failure of cooperative approaches in the Platte River Basin, involving downstream effects of water diversion by upstream jurisdictions, is also predictable on this basis. See John Echeverria, *The Limits of Collaborative Approaches to Watershed Management: The Case of the Platte River*, Address at the Wm. & Mary Env'tl. L. & Pol'y Rev. Symp., Water Rights and Watershed Management: Planning for the Future (Mar. 31, 2000).

¹⁷³ See Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

¹⁷⁴ *Id.* at 6-8.

¹⁷⁵ See Nickelsburg, *supra* note 147, at 1390.

¹⁷⁶ Maryland and Virginia harvest similar numbers of blue crabs each year, subject to regulations established by each of the states for its portion of the Bay. The crabs are not equally distributed between the states, however. Male crabs predominate in Maryland's waters, while female crabs are far more abundant in Virginia waters, toward the mouth of the Bay, where they spawn. The future abundance of crabs in both states is therefore dependent on measures taken by Virginia to protect female crabs. See Craig Timberg, *Virginia Is for Crabs*, WASH. POST, June 28, 2000, at B1. Thus, whereas the flow of externalities from water pollution may be predominantly downstream, the flow of externalities from crab harvesting practices may be predominantly in the other direction. Complexities such as this help equalize the bargaining leverage of each of the states and enhance the likelihood of welfare maximizing solutions across the range of issues.

perceived to be at risk, and if the interests of the jurisdictions are relatively compatible. Although even more difficult to assess objectively, other factors, such as qualities of leadership and institutional capacity within the region, may also be at work.¹⁷⁷ Also, as we have seen, success can be strongly influenced by the role played in the collaborative enterprise by a central authority.

V. TOWARD A MORE NUANCED ROLE FOR CENTRAL GOVERNMENTS

That negotiated solutions may be more difficult in some situations does not mean that they are impossible, given the availability of carrots or sticks administered through central governments. In addition to reducing transaction costs, as we have seen, central governments can also change the cost-benefit calculation of parties where interests are conflicting. A central government might subsidize an "upstream" jurisdiction, absorbing some or all of the additional costs of resource protection. The success of the Colorado River Basin Salinity Control Program, for example, in a watershed otherwise rent with bickering among states over river management issues, is at least partially attributable to federal payments for salt-reducing projects in upstream jurisdictions.¹⁷⁸ The central authority may also impose regulations on the upstream jurisdiction requiring protective measures, or it might offer some combination of subsidies and regulations. Subsidies can help address the distributional inequities of polluter-pays regulation and reduce political resistance in upstream jurisdictions, which has been effective in the past in limiting control of transboundary pollution. In the Mississippi River Basin, a federal task force has proposed a draft plan to address the Gulf of Mexico's hypoxia problem.¹⁷⁹ Emphasizing the national interests at stake, the draft plan proposes a new federal restoration fund to subsidize measures in upstream states to reduce nutrient loadings to the Gulf and vigorous application of existing federal regulatory requirements.¹⁸⁰

¹⁷⁷ See, e.g., MARK T. IMPERIAL & TIMOTHY HENNESSEY, ENVIRONMENTAL GOVERNANCE IN WATERSHEDS: THE IMPORTANCE OF COLLABORATION TO INSTITUTIONAL PERFORMANCE 68 (2000) (draft report prepared for National Academy of Public Administration); CARON CHESSE & GINGER NELSON, THE NAVESINK WATERSHED MANAGEMENT EFFORT 27-33 (2000) (draft report prepared for National Academy of Public Administration).

¹⁷⁸ See ADLER ET AL., *supra* note 67, at 58, 61.

¹⁷⁹ See Notice of Availability and Request for Comment on Draft Plan of Action for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico, 65 Fed. Reg. 42690 (July 11, 2000). The proposal responds to a requirement in the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998, H.R. 2204, 105th Cong., § 604(b)(1998), that the federal task force, "in conjunction with the chief executive officers of the States," submit a plan to the President no later than March 30, 2000.

¹⁸⁰ See DRAFT PLAN, *supra* note 179, at 42695-96.

Thus, the new watershed approach anticipates that central authorities will not only devolve (to allow localized solutions to local problems) and facilitate (to reduce transaction costs), but also assert themselves through either their tax-and-spend or regulatory authority (to address situations where asymmetries may prevent beneficial cooperation among co-equal jurisdictions or where national interests otherwise require action). Depending on the context, the central authority may be called upon to play all these roles at once. How successful central governments are in discharging this diverse set of functions in a contextually appropriate way will largely determine the success of the new watershed approach.

Although central governments already administer subsidies and regulatory schemes affecting watersheds, collaborative watershed management suggests a more tailored approach than now characterizes many of these programs. Some federal funds are allocated according to the assessed needs of watersheds, but other funds are not.¹⁸¹ Federal agencies should have the flexibility to distribute those funds in a way that maximizes their welfare-enhancing potential across a range of watershed management efforts. Federal funding should focus on collaborative efforts that involve multi-state watersheds or aquatic systems within a single state that are of national importance, such as the Everglades or the California Bay Delta. Similarly, the EPA and other federal authorities should have the flexibility to tailor regulatory controls to the circumstances of particular watersheds in order to maximize benefits to the affected community.

For the EPA, recently introduced federal legislation—the Second Generation of Environmental Improvement Act¹⁸²—could provide the desired regulatory flexibility. Based on reinvention pilot programs, such as Project XL, the legislation would authorize “innovative strategy agreements” with interstate bodies, states and localities, among others. EPA could modify regulatory requirements based on its finding that an innovative agreement would produce “better environmental results” than enforcement of existing requirements.¹⁸³ Of particular relevance to watershed management, better environmental results could include demonstrating new

¹⁸¹ See *IMPERIAL*, *supra* note 177, at 98 (noting tendency of Section 319 (non-point source) funds to be distributed as “green pork”).

¹⁸² H.R. 3448, 106th Cong. (1999) (introduced by Reps. Greenwood, Dooley, Boehlert, and Tauscher).

¹⁸³ *Id.* at § 203(a)(1). An agreement would also require adequate monitoring of environmental results and broad public support. *Id.* at § 203(a)(2)-(3).

methods of nonpoint source pollution control or resource conservation.¹⁸⁴ This legislation would legitimize trade-offs of regulatory stringency in pursuit of environmental goals that naturally occur in bargaining with states, localities, and private entities, and would impose criteria to ensure that the trade-offs were in the public interest.

To maximize EPA's effectiveness as a watershed partner, Congress should increase the Agency's discretion to redirect funds authorized for distribution to the states, subject to conditions similar to those that would apply to the Agency's exercise of regulatory flexibility. Enhanced flexibility in the relevant funding programs of other federal agencies could provide additional leverage. Finally, Congress should provide expansive authorization for trading among both point source and nonpoint source dischargers.

Their complex role in watershed management also requires that central authorities be able to assert themselves. Because of the political sensitivity of transboundary environmental problems, central regulatory regimes in the U.S. have had difficulty in dealing with them.¹⁸⁵ EPA's recent successes in addressing interstate problems, such as acid rain and regional ozone transport, are due at least in part to amendments to the Clean Air Act in 1990 that strengthened and elaborated the Agency's authorities.¹⁸⁶ Although EPA has some authority to deal with interstate water pollution problems,¹⁸⁷ it has no effective regulatory authority to deal with non-point source pollution as a major source of remaining water quality problems. Although currently less appealing than increasing Agency flexibility, granting EPA authority to regulate non-point source pollution—contingent perhaps on the absence of an effective collaborative program—would enhance its ability to manage transboundary issues and other watershed issues of national import.

The threat of federal controls can be used to drive collaborative efforts, or if those efforts fail, controls may be imposed unilaterally. A number of interstate watershed institutions, including collaborative ventures such as those on the Platte River and the Columbia River Basin, have arisen

¹⁸⁴ H.R. 3448, at § 203(c)(3) (1999).

¹⁸⁵ See, e.g., Richard L. Revesz, *Federalism and Interstate Environmental Externalities*, 144 U. PA. L. REV. 2341 (1996); Merrill, *supra* note 45, at 932 ("Notwithstanding the broad general trend toward centralized regulatory authority in environmental law, . . . little meaningful regulation of transboundary pollution actually exists.").

¹⁸⁶ 104 Stat. 2399 (1990) (acid rain provisions added by 1990 Clean Air Act Amendments); 42 U.S.C. §§ 7410(a)(2)(D), 7426(b) (reflecting expansion of EPA's mandate to address interstate air pollution).

¹⁸⁷ See ADLER ET AL., *supra* note 67, at 15; Merrill, *supra* note 45, at 946.

directly in response to imminent federal regulatory intervention.¹⁸⁸ This suggests the efficacy of threatened central regulatory controls in overcoming transaction costs and conflicting interests among upstream and downstream jurisdictions. But "agreeing to a regional institution does not constitute agreement upon regional aims and goals . . . or even a commitment to make the regional institution work."¹⁸⁹ Collaborative watershed endeavors may be used by participants to mask lack of substantive progress on issues important to the public.¹⁹⁰ In collaborative settings, it may be more difficult for the public to know how decisions are being made, to monitor success, and to hold officials involved in those efforts accountable. Central authorities may use collaborative processes as a way of "passing the buck" or avoiding accountability.¹⁹¹ Also, having committed to a collaborative effort, central authorities may "find themselves caught up in the inertia of negotiations even when they doubt, or should doubt, that the resulting agreement will . . . serve the public interest."¹⁹² Thus, it will be important that central authorities be able to assert the broader public interest if it is not being served, even to the extent of unilateral action outside the cooperative framework. More generally and perhaps paradoxically, the ability of each of the parties in a collaborative setting to assert its interests independent of the others may be essential to the legitimacy and welfare-maximizing potential of the group enterprise.

VI. TRANSFORMATIVE ASPECTS OF WATERSHED INSTITUTIONS

The image I have drawn of collaborative watershed institutions, as forums for bargaining among their participants, has generally assumed fixed preferences and interests among citizens and government actors. It does not

¹⁸⁸ *Northwest Resource Info. Ctr., Inc. v. Northwest Power Planning Council*, 35 F.3d 1371, 1377-78 (9th Cir. 1994).

¹⁸⁹ See Ingram, *supra* note 9, at 12.

¹⁹⁰ Even the venerable Chesapeake Bay Program has been accused of providing a smokescreen to hide maintenance of the status quo. Tayloe Murphy, former Chair, Chesapeake Bay Commission, Comments at the Wm. & Mary Env'tl. L. & Pol'y Rev. Symp., Water Rights and Watershed Management: Planning for the Future (Mar. 31, 2000).

¹⁹¹ George C. Coggins, *Regulating Federal Natural Resources: A Summary Case Against Devolved Collaboration*, 25 Ecology L. Q. 602-3 (1999).

¹⁹² Cary Coglianese, *The Limits of Consensus*, 41 ENV'T 28, 32 (April 1999).

capture the potential of these institutions over time to transform the way we think and act, individually and collectively, about watersheds. In this section, I address claims that collaborative arrangements, such as we saw in the Chesapeake Bay Program, may have a transformative effect. These claims include aspirational elements that help explain watershed management's broad appeal.

A. *Redefining the Interests of the Bargaining Parties*

Although collaboration does involve interest bargaining, it may alter the way in which parties view their own interests, or it may alter those interests. Jody Freeman has disputed the adequacy of "interest representation theory" or "the vocabulary of pluralism" to fully explain what happens in successful collaborative efforts.¹⁹³ Although these efforts still "involve bargaining and the pursuit of self-interest,"¹⁹⁴ they provide a deliberative setting in which parties can reconceptualize a problem or reinterpret their own interests to reach a resolution.¹⁹⁵ Thus, although recent Virginia Governors may see their interest as a strong defense of property rights, their involvement in the long-term cooperative venture of the Chesapeake Bay Program—with its own norms—may lead them to reconceptualize that interest in a way that is compatible with minimizing ill effects of development on the Bay, e.g., "smart growth" incentive programs in lieu of traditional land use regulation. The norms developed through the Program might also be seen as altering the interests of the member jurisdictions or their representatives on the Council. The norm of cooperation among members of the Council, for example, may amount to more than an expectation of cooperative behavior on the part of each of them, established through repeat encounters under threat of retaliation for uncooperative behavior, as in the iterated prisoner's dilemma. It may operate as a social norm that individual members feel obligated to follow because of their desire for the "good opinion or respect" of other members or their own "internalized sense of duty."¹⁹⁶ These perceived obligations may produce higher levels of cooperation than would be predicted by a purely game-

¹⁹³ Jody Freeman, *Collaborative Governance in the Administrative State*, 45 UCLA L. REV. 1, 5 (1997).

¹⁹⁴ *Id.* at 71-72.

¹⁹⁵ See Sabel et al., *supra* note 10, at 4 ("Further deliberation leads to successive redefinitions of self-interest that permit robust collaborative exploration.").

¹⁹⁶ Richard H. McAdams, *The Origin, Development and Regulation of Norms*, 96 MICH. L. REV. 338, 340, 355 (1997); Robert C. Ellickson, *Social Norms, Social Meaning, and the Economic Analysis of Law*, 27 J. LEGAL STUD. 537, 540 (1998) (noting the importance of "informal enforcement of social mores" in maintaining societal control).

theoretic account of interactions among the parties. The evolution of social norms around the announced substantive goals of the program also has the capacity to change the interests of the parties in this way.¹⁹⁷ Although this dynamic may be seen as principally affecting those directly involved in the program (as members of the Executive Council, an advisory committee, or watershed team), watershed institutions also have the corresponding potential to change citizen preferences as well, as I discuss below. Evolution of citizen preferences, in turn, can alter the interests of the states (as interpreted by the elected officials who represent them) and other institutional players as well.

B. *Transforming Citizen Preferences*¹⁹⁸

An express tenet of EPA's community-based environmental protection program is to "build a sense of stewardship" around places.¹⁹⁹ A goal of the Chesapeake Bay Agreement is "to foster individual responsibility and stewardship of the Bay's resources."²⁰⁰ In addition to the programmatic goals and commitments advanced by the parties, the Chesapeake Bay Program works to stimulate watershed awareness, including posting watershed boundary signs on interstate highways leading into and out of the watershed, stenciling reminders on stormwater inlets that runoff from streets in the watershed ends up in the Bay, and sponsoring watershed teams and

¹⁹⁷ This dynamic can also cut in the opposite direction, if norms develop that countenance non-cooperation or disregard for watershed resources. Based on his recent empirical study of a half dozen watershed management efforts, Imperial concluded that "the social norms created peer pressure at the individual, professional, and political level that encouraged implementation activities. Conversely, the social norms that developed in Narragansett Bay help actors justify their lack of participation." IMPERIAL, ENVIRONMENTAL GOVERNANCE IN WATERSHEDS, *supra* note 177, at 107.

¹⁹⁸ 'Preferences' are not exclusive of, and may be strongly influenced by, social values or norms. See Carol M. Rose, *Environmental Faust Succumbs to Temptations of Economic Mephistopheles, or, Value By Any Other Name is Preference*, 87 MICH. L. REV. 1631, 1635-39 (1989) (book review). But see Cass R. Sunstein, *Social Norms and Social Roles*, 96 COLUM. L. REV. 903, 909 (1996) (arguing that the idea of 'preferences' is inadequate for both positive and normative examinations of people's choices).

¹⁹⁹ EPA, FRAMEWORK FOR COMMUNITY-BASED ENVIRONMENTAL PROTECTION, *supra* note 3, at 12.

²⁰⁰ 1987 CHESAPEAKE BAY AGREEMENT, *supra* note 73. Similar recognition of individual stewardship appears in *Chesapeake 2000: A Watershed Partnership*, *supra* note 75.

citizen water quality monitoring. These ventures are designed not only to inform the public about the Bay and engage the help of citizens but also, in a way that has strong normative implications, to connect people to the Bay and establish a sense of community with others in the watershed. Although messages from governments will not be accepted by everyone (and may be actively resisted by some), these efforts might be expected to alter or intensify the preferences of at least some citizens in a way that favors cooperative efforts to protect the Bay.²⁰¹

Institutional shaping of citizen preferences may be even more pronounced in the activities of the Chesapeake Bay Foundation and other watershed-oriented NGOs. Jonathan Macey has documented the power of mediating institutions such as membership organizations to transform the interests of their members.²⁰² “[M]ediating institutions focus, amplify, and shape the interests and policy preferences of their members. Members rely on their institutions for information on what they should believe. . . . [E]ven their independently informed preferences are sharpened, and often shaped, by their membership.”²⁰³ Thus, rather than simply reflecting or seeking to ensure that existing preferences of their members are reflected in decisions about the Bay, the Chesapeake Bay Program’s NGO counterparts, such as the Chesapeake Bay Foundation, are actively engaged in the process of shaping constituent support for stronger protection programs. The ubiquity of the Chesapeake Bay Foundation’s “Save the Bay” bumper sticker throughout the region is perhaps tribute to their success. One might expect that those holding contrary preferences would form competing groups, seeking to shape preferences in different directions. Perhaps such institutions exist in the form, for example, of property rights organizations or associations of developers or farmers. However, I am aware of no

²⁰¹ Compare Lawrence Lessig, *The Regulation of Social Meaning*, 62 U. CHI. L. REV. 943 (1995) (noting roles of government in “constructing social meanings”), Cass R. Sunstein, *Law, Economics and Norms: On the Expressive Function of Law*, 144 U. PA. L. REV. 2021, 2029-33 (defining the “expressive” function of law in changing social norms); Mark Seidenfeld, *Empowering Stakeholders: Limits on Collaboration as the Basis for Flexible Regulation*, 41 WM. & MARY L. REV. 411, 443 (2000) (concluding that government efforts to change fringe-group norms against cooperation are risky and may increase resistance to cooperation); Eric A. Posner, *Law, Economics, and Norms: Economic and Inefficient Norms*, 144 U. PA. L. REV. 1697, 1739 (1996) (noting that if undesirable norms are “the result of deeply felt sentiments, then government action is unlikely to change the norm, and may even strengthen it”).

²⁰² Jonathan R. Macey, *Mediating Institutions: Beyond the Public/Private Distinction: Packaged Preferences and the Institutional Transformation of Interests*, 61 U. CHI. L. REV. 1443 (1994).

²⁰³ *Id.* at 1475.

organizations that directly oppose the mission of the Chesapeake Bay Foundation and its fellow NGOs.

Whether and to what extent regional consciousness and a stewardship ethic are strengthened by watershed institutions, such as the Chesapeake Bay Program and the Chesapeake Bay Foundation, should be capable of empirical verification. From her vantage point of nearly thirty years ago, Ingram found generally that "[t]here is no solid evidence that social awareness of regions is on the increase."²⁰⁴ A survey by the Chesapeake Bay Program in 1994 showed predominantly high-to-moderate familiarity with the Bay and concern for its health among residents of the watershed.²⁰⁵ However, those survey results do not reveal the causes of that awareness and concern, nor do they provide a basis for comparing awareness in 1994 to other periods in the Bay's history. A 1999 public survey by the Chesapeake Bay Foundation showed that people were increasingly likely, as a general matter, to perceive the Bay as healthy and its problems as less severe than in 1995.²⁰⁶ At the same time, when asked to evaluate threats to the health of the Bay on a list of specific problems (such as nutrient pollution, loss of wetlands, loss of oysters, sprawl), respondents viewed nearly every problem as more of a threat than in a similar survey conducted in 1997.²⁰⁷ The lower concern about the general health of the Bay is consistent with the recent reports of improvements in the Bay's overall condition. The increased concern over specific issues—including issues publicly identified as critical by the Program and the Chesapeake Bay Foundation—suggests a continued and perhaps even heightened sensitivity to the Bay's problems. It remains to be explored to what extent this sensitivity might reflect the longer term evolution of citizen preferences in support of watershed programs.

C. *Transforming the Democratic Process*

To the extent that watershed institutions do reshape preferences, we might expect those preferences, so transformed, to have an impact on the choices that citizens make through traditional political processes, e.g.,

²⁰⁴ Ingram, *supra* note 9, at 11.

²⁰⁵ CHESAPEAKE BAY PROGRAM, CHESAPEAKE BAY ATTITUDES SURVEY, Apr. 28, 1994, at 1, 3.

²⁰⁶ Chesapeake Bay Foundation, Survey Results (Nov. 1999) (on file with author).

²⁰⁷ *Id.*

choosing their elected officials or engaging in public debate. However, Sabel, Fung and Karkkainen envision a further effect of these institutions on the democratic process. By engaging citizens in watershed decision-making processes at the local (tributary) level, they argue, these institutions also have the ability to move decision-making to a more directly participatory, and therefore democratic mode. They contrast the Chesapeake Bay Program and similar collaborative efforts to decision-making by a distant political or administrative elite buffered from everyday concerns and conclude that these programs offer at least the possibility "that participation of a directly deliberative kind, far from being a charge against efficiency, may be today a precondition for it."²⁰⁸

As these authors acknowledge, however, their claims will require further development and validation. Local watershed teams, for example, may engage citizens in developing information and advising decisionmakers, but they are not given final responsibility for making decisions on behalf of the community. At least formally, officials within existing governmental structures retain that responsibility. It remains unclear to what extent expanded opportunities for citizen involvement can be expected to alter outcomes that would otherwise be produced by those structures. To the extent that what is envisioned is a *de facto* shift of decision-making authority to public/private groups, there will be questions about whether these arrangements satisfy representational norms. Kenny cites evidence that, in an effort to empower local collaborative groups, non-local policy makers may give those groups more credence than local government, even in areas of local government responsibility.²⁰⁹ This may raise concerns over whether members of the local watershed associations are representative of their community and how they are to be held accountable. Deference to local stakeholder groups also raises the concern that prerogatives of the community of place not eclipse the concerns of the potentially larger community in interest.

Despite these concerns and the need for more empirical study, one senses that public involvement in the program, through multiple forums, is robust and relatively balanced and that the interaction of governmental and citizens groups at multiple levels enhances the deliberative quality of the decision-making process. The stewardship community that the program set out self-consciously to foster seems, in some substantial form, to exist and to be influential in watershed policymaking—witness the Governor of Virginia's approval of no-net-loss wetlands legislation over the objections of

²⁰⁸ Sabel et al., *supra* note 10, at 10.

²⁰⁹ Kenny, *supra* note 28, at 58 n.110 (citing survey by Deborah D. Paulson and Katherine M. Chamberlin, Guidelines and Issues to Consider in Planning a Collaborative Process) (Inst. for Env't and Nat. Resources, Univ. of Wyo.) (1998).

special interests. Thus, the ideal of deliberative democratic institutions organized around place—variously described as “civic environmentalism,” “backyard environmentalism,” or “watershed democracy”—begins to find expression here. Unlike purer forms of localism or bio-regionalism, however, this ideal includes representatives of national interests in the deliberative process.

VII. COLLABORATIVE INSTITUTIONS AS ACTORS IN A BROADER FIELD

Like other institutions, watershed institutions, once they coalesce, will exhibit interests of their own. Those interests may conflict with the interests of other institutions. For example, place-based efforts such as the Chesapeake Bay Program represent, in some important ways, an alternative to traditional line programs within EPA and other federal agencies. The demand by these programs for high level political attention, money, and other agency resources may compete with the demands of the line programs. These place-specific investments may be seen as draining resources from programs that are designed to advance improvements in water quality more generally and to promote watershed management nationwide as well as to address other environmental and resource issues.

Watersheds (or entities representing them) not only compete against line programs, they also compete against each other. Although most regions, including multi-state river basins, are not anxious to provoke more intense regulatory activity by the federal government (concentrating costs on actors within the region), they are anxious to attract federal funds that can help promote cooperation in watershed management, subsidize beneficial projects, and provide local or regional economic benefits. Regional institutions provide a conduit for seeking and receiving that attention. For example, the Gulf of Mexico Program was created and funded largely at the insistence of members of Congress and other officials from the Gulf region who were concerned that the Great Lakes and Chesapeake Bay programs were attracting large amounts of federal funds for research, monitoring, education, and public participation. They argued that the Gulf of Mexico was certainly as important to the nation as the Great Lakes and the Chesapeake and should therefore receive its fair share of federal resources to address its problems.²¹⁰

²¹⁰ Support for a strong regional institution in the Gulf is qualified by concerns about intensified federal regulatory attention, and perhaps for this reason, the Gulf Program is less

Competition among places for national recognition (and resources) can take the form of public appeals. Although it involves in-state rather than interstate resources, the rivalry between advocates for Louisiana's wetlands and Florida's Everglades is illuminating. In endeavoring to attract federal support for conservation of the vast wetlands of the Mississippi Delta,²¹¹ Louisiana has complained publicly that the Everglades have received vastly larger federal sums for restoration than its wetlands,²¹² even though "Louisiana's problems are just as pressing."²¹³ To correct this disparity, Louisiana engaged entertainment figures in a campaign to galvanize national awareness of, and support for, the protection of the Mississippi Delta system. Thus, we see the institutional surrogates for large aquatic systems competing to shape the preferences of citizens outside their place in a struggle for central resources. They seek canonization of their place, their watershed, as among places of national concern warranting national resources.

Similar patterns of behavior are evident among watershed NGOs. The Chesapeake Bay Foundation, for example, competes against national environmental groups for members and scarce contributions. To the extent that it draws membership support from outside the watershed of the Bay, the Foundation is also competing against other place-based environmental groups for that support. Thus, it has an interest in advancing the perception that the Bay and the threats to its integrity are more important, and therefore more deserving of contributions, than other places of concern.

As we have seen with traditional institutions, watershed institutions may also find it to their advantage to cooperate. For example, in what amounts to a joint bid for federal funding, the President of the Chesapeake Bay Foundation recently testified before Congress on behalf of a coalition of regional watershed bodies that "unabashedly represents a very special interest—the restoration and protection of this nation's coastal estuaries."²¹⁴ The coalition sought support for legislation to improve watershed planning

visible than the Chesapeake Bay or the Great Lakes Programs, and federal legislation to establish the program has not passed.

²¹¹ Congress created a structure for federal-state cooperation and financial assistance in the Coastal Wetlands Planning, Protection and Restoration Act, Pub. L. No. 101-646 § 302. 104 Stat. 4778 (1990) (often referred to as the "Breaux Bill").

²¹² The Clinton administration has endorsed a federal-state effort to restore the Florida Everglades that will cost approximately \$8 billion. "The federal-state effort to save coastal Louisiana totals about \$40 million per year." Ryan Clinton, *'New Orleans, Like Venice, Is Sinking: A Case Study of the Vanishing Louisiana Wetlands'* at 35 (paper on file with author).

²¹³ *Id.* at 35.

²¹⁴ Testimony of Will Baker, *supra* note 94.

and coordination efforts for estuaries and, not incidentally, increase federal funds for habitat restoration in coastal systems.²¹⁵

One might be concerned that this competition among watershed interests, and the accommodation of those interests at the national level, might represent just another form of interest group politics. To what extent does federal support for a watershed's restoration reflect a deliberative judgment about the importance of that watershed, rather than simply the relative political influence of its boosters? Clearly the Chesapeake Bay Program has benefited from large federal investments in information and logistical support. Those investments were due in significant part to the influence of Senator Barbara Mikulski from Maryland, an ardent Bay advocate, first as Chair and more recently as Ranking Minority Member of the Appropriations Subcommittee responsible for EPA's budget. Would they have been made without her efforts? Similarly, it might be questioned whether the large investments planned for the Everglades restoration might be related to the large number of electoral votes in Florida, although number of electoral votes would probably have a higher correlation with potential public benefits than committee position. National support for watershed restoration, like the earlier generation of water development projects, might be seen as green pork.

However, over time the debate about which places are most deserving of national recognition might be expected to yield choices that reflect the preferences of the nation, not just the relative political influence of regional interests. One might think of this as a process of canonization of place with some places, such as the Grand Canyon, having clearly achieved canonical status, others, such as the Chesapeake Bay, claiming such status but still subject perhaps to further testing, and still others, such as the Mississippi Delta, struggling for national recognition. Competition among places aids the winnowing process.

Similarly, the competition among watershed-based organizations and their national or generic counterparts may yield deliberative benefits. It may provide legislators, other policy-makers, and the public with choices about what kinds of efforts, at what levels, are most productive. By offering alternatives to generic central programs, watershed programs allow decisionmakers to balance their investments between place-based and line programs, depending on the benefits that flow from each. Line programs

²¹⁵ See, e.g., H.R. 1775, 106th Cong., 1st Sess. (May 12, 1999); S. 835, 106th Cong., 2d Sess. (April 20, 1999).

will continue to be necessary, as we have seen, because they can help stimulate and discipline the formation and operation of watershed efforts, and because they can ensure a level of protection in watersheds for which—for whatever reason—effective watershed institutions do not exist. Yet, competition by watershed institutions for recognition and funding ensures that the often more focused, collaborative and publicly supported place-based programs are considered.

VIII. CONCLUSION

Collaborative watershed institutions, like the Chesapeake Bay program, will be more difficult to establish in some settings than in others and, where transaction costs are high by comparison to the benefits to be achieved, may not be pursued at all. Their success will often depend upon both resources and authorities at a central level in order to reduce transaction costs, to address conflicting interests among jurisdictions, and to ensure that the broader set of interests outside the watershed is represented. They challenge EPA and other central authorities “simultaneously [to facilitate,] command and devolve”²¹⁶ and call for increased flexibility and new measures of accountability to ensure the use of those authorities to best advantage. Where they fail, centrally imposed solutions may be necessary. However, where they succeed, these institutions offer seductive possibilities: to develop and refine our sense of what it means to live together as citizens of a watershed, and of a nation of watersheds, and to produce policies and actions worthy of that sense.

²¹⁶ DeWitt John, *Good Cops, Bad Cops*, 24 BOSTON REV. 5 (Oct.-Nov. 1999), at 16.