

COMMUNITY-BASED ENVIRONMENTAL PROTECTION: A STATUS REPORT AND SOME NEW EVIDENCE*

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Abstract

Community-based environmental protection (CBEP) enjoys a broad appeal as an alternative approach to the top-down, command-and-control regulatory approach that dominates U.S. environmental policy. Advocates – representing various political and ideological persuasions – argue that CBEP can deliver both procedural and outcome benefits. Yet, despite over a decade of expansive support, the performance of CBEP remains largely unknown, particularly with regard to environmental outcomes. In this paper, we review the current state of knowledge regarding CBEP, considering both its promise and what little is known about its actual performance. We then consider new environmental outcome data we compiled from CBEP efforts to implement the Massachusetts Wetlands Protection Act. Our analysis suggests that CBEP may live up to its advocates' expectations.

1. Introduction

“Community-based environmental protection” (CBEP) captures a variety of forms of local government and citizen involvement in environmental decision-making (Press and Balch, 2002; John and Mlay, 1999; Murdock and Sexton, 1999). The common element among all these forms is a “place-based” focus - the local context in which environmental decisions are made and effects are felt. After 30 years of what is often described as generic, one-size-fits-all, environmental protection efforts, it is not surprising that CBEP has become the preferred choice of policy advocates across a wide political spectrum. Political conservatives, states-rights proponents, small government advocates, and property-rights activists prescribe CBEP as a way to produce environmentally sound outcomes that are community (place) sensitive and less burdensome to business and property owners (Yandle, 1997; John, 1994). Others, such as minority and working-class community activists, environmental justice groups, urban redevelopment advocates, civic democracy proponents, and environmental grass-roots activists argue the CBEP can overcome the inherent flaws in top-down federal environmental regulation by allowing communities to devise locally-tailored, holistic, flexible, and thus more effective solutions to complex and diffuse environmental problems, such as non-point-source pollution and habitat loss (Dowie, 1996, Shutkin, 2001). Clearly, any policy strategy that garners such broad based political support deserves serious attention.

The broad appeal of CBEP comes from its promise of delivering both procedural and outcome benefits over traditional command-and-control environmental regulation. On the process side, CBEP is expected to produce more democratic, more civic-oriented, less contentious, more inclusive, and more efficient (i.e., lower transaction costs) environmental decisions (Karkkainen, et al., 2000; John, 1994). The community, rather than far-removed agency bureaucrats, evaluate relevant policy tradeoffs, exercise discretion, and make decisions in implementing policy. On the outcome side, CBEP is supposed to yield environmental outcomes at least as protective as (if not superior to) traditional command-and-control regulation. Shutkin (2001, 109) is representative of this argument: “the push to reinvent environmental regulation is being driven in part by the recognition that local, multi-stakeholder involvement in environmental decision making

is key to effecting better environmental results.”¹ In short, CBEP is supposed to produce better policy, better politics, and better environmental outcomes.

Yet, despite a decade of scholarly, governmental, and advocacy support, the performance of community-based environmental protection remains largely unknown. As Finnegan and Sexton (1999, 333-4) observe: “relatively little effort has been devoted to understanding how communities function, evaluating the efficacy of different models for community involvement and participation, or analyzing whether community-based decisions are, in fact, better decisions.” The literature that does exist is for the most part an advocacy literature that explores the unrealized potential of CBEP (e.g., Mazmanian and Kraft, 1999; Shutkin, 2001; Brick, et al., 2001). Arguments are presented as case studies intended to illustrate, describe, and probe rather than to analyze critically. And, since few of the featured cases have played out fully, we cannot say much about their ultimate impacts on community decision-making or environmental quality.

With this in mind, the objectives of this paper are twofold. First, we review the state of knowledge regarding CBEP, considering both its promise and what little is known about its actual performance. Second, we consider new environmental outcome data we compiled from CBEP efforts to implement the Massachusetts Wetlands Protection Act. Our analysis provides preliminary support for the idea that CBEP does lead to better environmental outcomes, thereby living up to its advocates’ expectations.

The paper proceeds as follows. In section two, we define CBEP and create a taxonomy of activities included under the CBEP umbrella. In section three, we review the existing empirical evidence on the performance of CBEP, focusing our attention on both procedural and substantive outcomes. In section four, we analyze new evidence from CBEP efforts in Massachusetts – town level implementation of the Massachusetts Wetlands Protection Act. Last, in section five, we offer some brief conclusions.

2. What is Community-Based Environmental Protection?

U.S. environmental policy has undergone major re-evaluation over the past decade. Academic scholarship (e.g., Davies and Mazurek, 1998; Chertow and Esty,

¹ This argument parallels those examining state-level environmental federalism. See, for example, Oates (2001).

1997), blue-ribbon commissions (e.g., PCSD, 1996; NAPA, 1997; CSIS, 1998), and politicians (e.g., Clinton and Gore, 1995; Bush, 2003) have nearly uniformly recommended that the command-and-control regulation central to the existing environmental protection system be supplemented with (if not replaced by) more flexible, non-regulatory approaches. In addition to the broader application of market-based mechanisms such as emissions permit trading and information-based approaches such as pollution disclosure requirements, CBEP has emerged as a potential way to address problems that are not easily managed with “end-of-the-pipe” solutions. Reflecting the consensus supporting wider application of CBEP, the U.S. Environmental Protection Agency (EPA) has recently emphasized its use. The Clinton Administration made CBEP a central part of its environmental protection strategy (Clinton and Gore, 1995), and the Bush Administration has continued to push CBEP as an innovative solution to contemporary environmental challenges (U.S. EPA, 2003).

There is no single definition of CBEP, as it represents a myriad of activities in which communities² become involved in creating and implementing environmental protection. The U.S. EPA (1999, 5) has defined CBEP as a “holistic and collaborative approach to environmental protection [that] . . . brings together public and private stakeholders within a place or community to identify environmental concerns, set priorities, and implement comprehensive solutions.” Given this broad formulation, a number of different types of community-level efforts to protect the environment and manage natural resources are typically characterized as examples of CBEP, ranging from grassroots, citizens campaigns to state and local government initiatives, addressing issues such as watershed management, endangered species habitat protection, recycling, and urban sprawl.

Despite their diversity, CBEP efforts share a set of unifying principles. First, CBEP is place-based. CBEP activities tend to focus on a location, be it a town, watershed, or tract of wildlife habitat, providing the opportunity for policy to be based on local knowledge and conditions and to be informed by and sensitive to the preferences and values of local actors, which vary across communities (John, 1994). This principle is

² A community, this context, should be thought of broadly; it is in effect, defined in each situation by the scope of the problem or issue at hand.

in stark contrast to command-and-control regulation, which is typically media-specific (i.e., air, water, and land) and usually entails setting uniform standards or requiring uniform mitigation measures, without giving much consideration to local circumstances or local preferences.

A second common principle linking CBEP efforts is their participatory nature. CBEP activities are meant to be collaborative and nonhierarchical processes that provide opportunity for all relevant stakeholders to participate equally in decision-making. Broad public involvement from individuals and groups representative of divergent interests and viewpoints is seen as critical for reducing the adversarialism commonplace in traditional environmental decision-making (Weber, 1998), and for achieving social goals such as educating citizens, incorporating public values into decisions, reducing conflict among interest groups, and increasing trust in governmental institutions (Beierle, 1999). Advocates of CBEP, and deliberative processes more generally, argue that meaningful public participation builds social capital and helps shape democratically legitimate decisions (Shutkin, 2001; Fiorino 2000). Sabel, et al. (2000, 9) argue that deliberation among traditional antagonists may, moreover, have a transformative effect, leading to a redefinition of self-interests and a rethinking of institutional boundaries and procedures.

Third, CBEP often focuses on problems extending beyond the scope of the existing environmental regulatory system. CBEP efforts generally define goals and issues broadly, crossing programmatic and institutional lines (NAPA, 1997). The set of statutes enacted by the federal government in the 1970s targeted problems such as smokestack and tailpipe emissions, point sources of water pollution, and hazardous waste sites. In contrast, CBEP efforts tend to focus on more diffuse causes of environmental degradation such as non-point source water pollution, as well as on the management of common resources such as rangelands or watersheds, pollution prevention, and broad environmental objectives such as ecosystem management and sustainability.

Despite these common principles, CBEP efforts do differ along an important dimension – the degree of governmental participation. As noted by Press and Balch (2002, 184), community-based efforts arise when communities are afforded the option – or take the initiative – to craft place-specific solutions. Some efforts are organic, grassroots projects often stemming from a crisis or a problem neglected by the federal

environmental protection regime (John and Mlay (1999), while others are agency-driven, government initiatives to encourage public participation and/or to address problems difficult to reach through the existing regulatory system (NAPA, 1997). Thus, different types of CBEP can be placed along a continuum, reflecting the level of government participation involved.

On one end of this continuum are what might be termed “pure” cases of CBEP in which local actors – defined broadly to include state and local governments and citizens – take the initiative to organize an environmental protection effort outside (and beyond the requirements of) an existing regulatory framework or government agency. Many scholars refer to this type of CBEP as “civic environmentalism” (John, 1994; John and Mlay, 1999; Shutkin, 2001). These processes are typically non-regulatory and depend on voluntary action by participants. Examples of these pure cases would be the state of Iowa's efforts to address nonpoint source water pollution (Lowry, 1992; John, 1994), King County, Washington's recycling initiative, and Cambridge, Massachusetts' effort to encourage local companies to reduce their greenhouse gas emissions.

On the opposite end of the spectrum are CBEP activities where federal or state agencies devolve implementation authority for some policy or program to the local level. Although not always characterized as examples of CBEP, local implementation of federal or state environmental programs represent efforts to empower local governments with the authority to make the decisions impacting their local environment. Typically, these programs are regulatory in nature and the devolving agency maintains oversight responsibility, sets a minimum standards that must be met, and maintains the right to re-assume program responsibilities if it finds local implementation efforts to be inadequate.³ Thus, local bodies act as agents for higher level government authorities. Nevertheless, this partial yielding of authority enables local actors to use their discretion in making community-sensitive decisions reflective of their priorities and preferences. Examples of this type of “implementory” CBEP include the local implementation of federal clean air regulations by pollution control districts in California, watershed planning as part of the EPA's National Estuary Program, and town-level implementation of wetlands protection in Massachusetts, which we discuss in detail later in this paper.

³ In the federal-state context, this is known as the principle of partial preemption.

Sitting in the middle of this continuum are a number of different environmental partnership arrangements that include governmental participation and support (often from multiple levels of government), but in which a government agency is not the final arbiter or decision-maker. In these cases, environmental agencies are participants in a broader multi-stakeholder process, along with other interested groups and individuals. These types of arrangements may begin as grassroots efforts, or they may be initiated from government agencies themselves in an effort to widen public participation in their policy-making. In either case, these efforts do not have the authority to implement their own decisions, but must instead rely on voluntary behavior or on separate regulatory action taken under an existing authority. The best example of this type of CBEP are collaborative watershed management partnerships which are multi-stakeholder processes focused on protecting watersheds (the Chesapeake Bay Foundation, is perhaps the best known).

3. Evaluating the Performance of Community-Based Environmental Protection

CBEP activities are increasingly commonplace within the large web of U.S. environmental protection efforts. Lubell, et al. (2002), for example, note that there are nearly one thousand collaborative watershed partnership groups operating in the United States. Continued pressure to devolve authority from the federal government to state and local governments, coupled with increasing emphasis on citizen involvement in decisions made by federal and state environmental agencies, suggests that the number of CBEP activities is likely to increase further. Despite the growing prevalence of CBEP, we know surprisingly little about its performance. In fact, perhaps no other recent reform in environmental policy has garnered so much attention and sparked so much enthusiasm, without sufficient attempts to measure and evaluate its outcomes. In this section, we summarize what we do know.

As noted previously, the literature discussing CBEP relies primarily on case studies. The case studies themselves are typically rich in detail – often the result of innumerable interviews with CBEP participants, direct observation of CBEP activities, and careful analysis of process documentation – and we have no reason to doubt that they have high levels of internal validity. However, it remains difficult to generalize the

results of such studies to other cases and contexts, and studying disparate examples of CBEP does not lend itself well to systematic analysis. Particularly worrisome, in our view, is the confidence with which scholars draw conclusions and prescribe policy recommendations based on these single cases. Some analyses of CBEP are more systematic in nature, and we concentrate our literature review on these studies.⁴ We concentrate our review on two products that proponents argue will result from CBEP: procedural benefits and environmental outcomes (e.g., policy and environmental quality).

Proponents of CBEP, and supporters of increased citizen involvement in environmental decision-making more generally, emphasize that such processes will produce better substantive decisions, informed by public values, and with more legitimacy and moral authority due to the collaborative manner of decision-making. Do they? Recent studies examining the procedural outcomes of CBEP provide mixed results.

Abel and Stephan (2000) analyzed over a hundred environmental initiatives managed by a local jurisdiction (city or county) that went beyond federal or state requirements; projects which we would characterize as clear examples of CBEP. A primary finding of their analysis focuses on the democratic nature of these CBEP efforts. A central promise of CBEP is that public participation will be widely representative of not just interested stakeholders, but the public *writ large*. Abel and Stephan found evidence to the contrary. In the cases they examined in which citizen involvement in the decision-making was significant and influential, the participants were mostly local government officials and community activists – that is, those individuals already active in local decision-making. Moreover, when considering the socioeconomic characteristics of the participants, they matched the attributes typical of individuals that participate in political activities – wealthier better-educated citizens – raising questions about the representative basis of the processes. Thus, to the extent that CBEP efforts are intended to broaden participation beyond the usual suspects, Abel and Stephan found CBEP to come up short.

⁴ We exclude from consideration reports done by government agencies, since these reports tend to be primarily descriptive and overtly biased in case selection.

Beierle and Cayford's (2002) meta-analysis of public participation in environmental decision-making studied 239 individual cases, most of which fall within our definition of CBEP.⁵ They found good evidence that these processes scored well on various “social goals,” which constitute many of the important procedural objectives put forth by advocates of CBEP. Specifically, they found that in a majority of the cases for which data were available, the processes successfully educated and informed the public, incorporated public values into decision-making, resolved conflict among competing interests, and built trust in government institutions. Beierle and Cayford, moreover, found that attributes of the processes themselves were associated with positive scores on their social goals. In particular, they found strong evidence that the level of motivation among participants, the quality of deliberations (i.e., whether decision-making was consensus-based), and the responsiveness of the lead government agency managing the process were important factors for attaining these social objectives. In sum, their results suggest that various contextual variables are important for predicting whether CBEP efforts will generate their expected procedural benefits.⁶

In another meta-analysis, Leach and Pelkey (2001) studied 37 studies of watershed management partnerships – probably the most common type of CBEP – to determine the factors that most often led to “success,” measured both in terms of procedural outcomes (e.g., trust building, conflict resolution, stakeholder satisfaction, strengthening organizational capacity) and substantive outcomes (e.g., adoption and/or implementation of watershed plans and improved environmental quality). We consider the former here, and the latter below. In total, Leach and Pelkey found that the 37 studies identified 210 distinct conclusions about what makes watershed partnerships succeed, which they re-classified into 28 separate themes. With factor analysis, they attempted to further consolidate these 28 themes into more manageable categories. This analysis led them to a somewhat ambiguous result that success was consistent with multiple theories and was largely a function of specific local circumstances.

⁵ Of course, studies such as those conducted by Beierle and Cayford and Leach and Pelkey (described below) are only as good as the underlying data they depend on, a point that both sets of authors recognize. Of particular concern, is that potential bias introduced by case study selection. Beierle and Cayford conduct sensitivity analyses, and find their results to be robust, when case selection bias is controlled; whereas Leach and Pelkey just note their recognition of the problem and move forward.

⁶ In the interest of full disclosure, Konisky contributed to this project, and the pilot project that preceded it.

Much of the empirical literature on CBEP efforts has focused on the area of collaborative watershed partnerships. Leach, et al. (2002), for example, studied 44 stakeholder partnerships organized around watersheds in California and Washington, randomly selected from 150 such arrangements active in the second half of the 1990s. They focus much of their attention on the environmental outcomes of these efforts which we discuss below, but they also examine whether the watershed partnerships produced the procedural benefits of increasing human and social capital. To evaluate these goals, they surveyed participants in the stakeholder partnerships. With respect to increasing human and social capital, Leach, et al. found that all of the partnerships earned scores above the average on their seven-point likert scale, with positive scores more likely in partnerships with longer durations. The key (although not surprising) result here is that stable partnerships – that is, those active over long stretches of time – are more likely to generate the procedural benefits suggested by CBEP advocates.

A final study deserving mention is Lubell's (2004) recent analysis of collaborative institutions organized around coastal watersheds. He considers two types of collaborative coastal watershed arrangements: those part of the EPA's National Estuary Program (NEP) and those acting independently. The National Estuary Program is federal government-led initiative that supports diverse, multi-stakeholder planning groups (formerly known as a Management Councils) in their efforts to build consensus around the problems facing and the remedies for protecting estuaries. State governments nominate estuaries for inclusion in the national program, and the EPA supports the collaborative processes through funding and technical support. Lubell compares the relative success of estuaries in the national program with those not included in terms of whether the former are better at forging consensus and cooperation.

To examine this question, Lubell conducted a large, panel telephone survey of participants in NEP and non-NEP processes (840 respondents in total), which in itself is an innovation in this literature which tends to instead rely on cross-sectional analysis. His regression analysis yields an interesting result. Although the collaborative processes of the NEP program led to increased levels of consensus, they did not generate changed levels of cooperation – that is, participant behavior did not change – leading Lubell to the conclusion that the result from these collaborative process was “symbolic policy.” The

key insight he takes away is that measuring success of such processes simply by measuring changes in stakeholder attitude and relationships is insufficient. Lubell concludes “[i]f process is the product, then collaborative institutions may actually do more harm than good by creating perceptions of progress in the absence of any real change, thereby reducing the expressed political demand for policy change without addressing the environmental and social conditions that generated the demand” (p. 565).

As Lubell's analysis highlights, focusing only on the procedural benefits stemming from CBEP may be problematic, providing a skewed view of actual outcomes. If Lubell is right, the degree to which success is measured by participant perceptions – which is almost always the case – the less we actually know the policy or environmental quality outcomes of CBEP processes. Thus, to the extent, possible it is necessary to consider studies that look to quantifiable criteria for measuring outcomes. Unfortunately, few studies of CBEP accomplish this task. As Leach and Pelkey (2001) note in their review of collaborative watershed partnership studies, *none* of the studies attempted to independently evaluate the actual impacts on ecological or socioeconomic conditions in the watershed. If anything, the limited evidence we do have may suggest that CBEP does not succeed in changing actual environmental outcomes, particularly when it comes to improving environmental quality.

Even efforts put forth as the models of CBEP success have failed to ameliorate environmental conditions. The Chesapeake Bay Foundation is, perhaps, the most often championed example of CBEP. Sabel, et al. (2000, 25-26), for example, characterize the Chesapeake Bay Foundation as “at once the most extensive, mature, institutionally complex, and successful of the ecosystem regimes emerging in the new regulatory framework.” However, if the ultimate objective of such collaborative watershed management initiatives is improved environmental quality, recent evidence suggests that the Chesapeake Bay Foundation has failed to mobilize such results (Whoriskey, 2004a; 2004b).

In general, the empirical literature on CBEP is largely silent on outcomes, which may reflect the difficulty of measuring such outcomes. Although many studies consider whether the participatory process led to an improvement in the substantive quality of decisions (e.g., Beierle and Cayford, 2002), it is difficult to systematically analyze this

type of outcome across cases. Simply measuring whether a process leads to an agreement or action plan is inadequate, since such policy outcomes are not commensurate across cases.

Attributing actual improvements in environmental quality to CBEP efforts is fraught with difficulty for several reasons. First, CBEP processes, particularly those operating with no or only informal government participation do not operate in a vacuum; rather, they exist along side existing efforts to manage natural resources or protect the environment. In fact, Beierle and Konisky's (2001) study of placed-based public participation in Great Lakes cleanup decision-making found that improved environmental quality was more likely when the participatory process was directly connected to an existing regulatory program. Second, complicating matters is the fact that most CBEP initiatives do not themselves have the capacity to determine whether their activities produce real environmental results. Leach, et al. (2002), for example, found that very few of the partnerships they studied collected the baseline and post-project monitoring data necessary to measure changes in watershed conditions, whether due to lack of funding, expertise, or the sheer difficulty of this task. Finally, case study scholars generally evaluate CBEP projects before they have played out to their ultimate conclusion, often stopping at the point in which stakeholders successfully (or unsuccessfully) reached an agreement. Beierle and Cayford (2002) found very few cases in which analysts reported on changes in environmental outcomes.

We do not conclude from this review of the literature that CBEP cannot or does not lead to improved outcomes, whether measured in terms of policy or changes in ambient environmental quality. Rather, we conclude that we simply do not know if this is the case. More research on outcomes is needed, particularly since CBEP continues to gain such widespread support. Moreover, questions about environmental outcomes are at the core of disagreement between proponents and skeptics of CBEP. No proponent of CBEP has suggested that poorer environmental outcomes would be necessary or acceptable as a tradeoff to secure procedural gains. Indeed there is little challenge there: one can imagine many ways to improve the participatory nature of the decision-making process that would produce poorer environmental outcomes. The promise of CBEP is

one of simultaneous procedural and environmental progress (Sabel et al., 1999; Mazmanian and Kraft, 1999).

If we imagine a large-scale experiment in CBEP, what should we expect to observe in terms of environmental outcomes? Underlying the argument that community-based decision-making will generate improved environmental outcomes is an assumption that there exists a general societal environmental ethic or norm among the American public (Paelke, 1990; Kempton, et al., 1995). The argument here is that with a place-based locus of decision-making, even those typically opposed to strong environmental protection measures, such as industrial and development interests, will behave “more green.” Once liberated from the inflexible, bureaucratic binds of the command-and-control regulatory system, the assumption is that those that will need to curb their environmental-degrading activities will do so to be better citizens and conform to community environmental norms.

Operating under a societal environmental ethic, local tailoring of environmental protection should produce greater net protection overall. Compared to the regulatory floor set by traditional federal or state environmental regulation, the preponderance of communities should achieve higher levels of environmental quality individually, producing a higher aggregate level of environmental quality across communities. To be sure, there will be variance in the specifics of environmental protection among communities arising from a host of differences in community characteristics. However, this variance would be largely one of style and form, rather than substantial differences in meaningful environmental quality.

In what follows we present tests of the basic argument that CBEP does produce better environmental outcomes. More specifically, we examine whether communities that take it upon themselves to engage in environmental protection do achieve higher levels of environmental quality compared to higher-level government agencies. As we explain in detail below, implementation of the Massachusetts Wetlands Protection Act provides a useful case for examining this question, due to the institutional structure of the implementation process. We believe the analysis below is one of the first (if not the first) to directly test whether CBEP efforts lead to better environmental outcomes.

4. Some New Evidence: Wetlands Protection in Massachusetts

Background

The Massachusetts Wetlands Protection Act (MWPA) - first passed in 1972 and amended in 1987 and 1996 - establishes a general framework for wetlands protection in what at first seems to be the classic “command and control” style. The statute empowers the Massachusetts Department of Environmental Protection (MDEP) with the general responsibility for protecting wetlands in the state. The MWPA and MDEP regulations specify the wetlands resources to be protected, the definitions of harmful impacts, and the performance standards to be enforced.

In an interesting twist, however, the statute directs MDEP to devolve primary responsibility for implementation to the state's 351 cities and towns. Accordingly, each community has a conservation commission whose main task is to write and enforce MWPA permits. Conservation commissions are composed of five to seven residents who volunteer to serve a three-year term.⁷ Town conservation commissions meet once or more each month to review wetlands permit applications from applicants (e.g., property owners, developers, or engineering firms) and to issue permits. A wetlands permit is required for any activity that directly impacts protected wetlands resources or that is located within 100 feet of a protected resource. Commissioners have considerable discretion within the law to establish the details of these permits, although the law sets a clear “floor” below which conservation commissions may not go. MDEP nominally reviews all conservation commission-issued permits to assure compliance with the floor, and has the authority to write superseding permits if it determines that the community-based permit does not uphold minimum MWPA standards. Permit applicants have the right to appeal the community-based permit to MDEP if they believe it goes beyond the minimal discretionary protective standards set by the law. Similarly, community residents (usually project abutters) or other aggrieved parties may appeal the permit if they believe that it does not meet the MWPA’s standards. The appeals process under the MWPA is adjudicated through the Massachusetts administrative court system, which have relatively low transaction costs.

⁷ The official appointments to town conservation commissioners are made by the town senior executive body (i.e., Board of Selectmen, Town Manager, or Mayor/city council).

As noted earlier, the MWPA is an example of “implementary” CBEP, in which local authorities act as agents (albeit with considerable discretion) to carry out state or federal policies. The analytic utility in examining this most restrictive form of CBEP rests in the presumed consistency of goals, objectives, means, and applicable science among the many CBEP entities (local authorities). This offers a standard against which we may compare implementation performance and assess environmental outcomes.

The analytic utility of the Massachusetts case goes further. The “home rule” provision of the state's constitution gives towns and communities the right to pass their own local bylaws and regulations, as long as they are more stringent than corresponding state law. In fact, the MWPA statute explicitly recognizes the right of communities to legislate wetlands bylaws that are more (but not less) restrictive than the state statute. In all areas where local bylaw provisions are more stringent than the MWPA, the former are definitive.

The very same conservation commissions that implement the MWPA write, implement, and enforce the community wetlands bylaw permits. Most significantly, wetlands permits authorized under a home rule wetland bylaw are *not* reviewable by MDEP. Thus, the conservation commission moves out from under the administrative oversight of MDEP when it works under community wetlands bylaw authority. Aggrieved parties (e.g., applicants, abutters) must take their appeal to Massachusetts Superior Court. Since these are judicial appeals they carry fairly weighty transaction costs for all parties.

In sum, towns with wetlands bylaws represent a different species of CBEP – one in which communities enjoy far greater independence to set standards and one that allows for environmental protection that goes beyond the authority of higher-level government agencies. This sets up a several interesting contrasts with non-bylaw communities. First, in crafting a wetlands bylaw, the community is legally obligated to impose tougher protection standards for wetland resources already within the jurisdiction of the MWPA.⁸ That is, the community must choose to rise above the floor set by state regulation if it wishes to invoke home rule.

⁸ This was required by a Massachusetts Supreme Judicial Court ruling in the late 1970s.

Second, a community bylaw may choose to protect additional “resources” not recognized by the MWPA. For example, vernal pools (seasonal ponding areas critical for amphibian breeding) and the upland areas around ponds and streams (hereafter termed “buffer zones”) – all outside the statutory jurisdiction of the MWPA – may be protected as community bylaw resources, with specific performance standards.

Third, in moving out from under the administrative umbrella of MDEP, a community that adopts a local wetlands bylaw attains decision-making independence. Adoption of a wetlands bylaw requires a majority vote of town meeting, a community-wide legislative body, so it reflects the intent of the community, rather than a handful of ardent proponents in local government, to surpass state standards. Thus, towns adopting a local bylaw assert their desire for better environmental quality than state authorities will enforce.

Finally, the “hard look” approach of judicial review means that local wetlands bylaws must be grounded on firm science in order to be upheld. Thus, a local wetlands bylaw raises the scientific bar for CBEP because the local conservation commission must stand alone (without the scientific and technical legitimacy of the MDEP agency) to defend its decisions if appealed.

Thus, town-level implementation of the MWPA involves two types of CBEP to study: 1) town conservation commissions implementing state set standards within the jurisdiction and oversight of the state; and 2) town conservation commissions implementing wetlands bylaws set through the town meeting process outside the jurisdiction and oversight of the state. Referring back to the continuum of CBEP we discussed in section 2, the Massachusetts wetlands case provides examples of both extremes.

The Massachusetts wetlands case provides an opportunity to study the performance of a large-scale experiment with CBEP on environmental outcomes. As described below, an important advantage provided by this case is that we can study environmental outcome measures that are commensurate across towns. Moreover, the Massachusetts wetlands case is a plausible example of what might happen were place-

based decision-making to become more widespread, replacing the imposition of command-and-control regulation from higher levels of government.⁹

Research Design

As of 2001, nearly half of Massachusetts' 351 towns and cities had passed local wetlands bylaw. By definition, these bylaws set more stringent protection standards, define a broader range of protected wetlands resources, and/or require higher levels of compensatory mitigation. Seventy-seven of these are coastal communities of which 53 have local wetlands bylaws. In order to maintain comparability (unit homogeneity) among the towns, we excluded these coastal communities from our sampling.¹⁰ We sorted the remaining 274 towns randomly and worked down the list, ultimately analyzing projects from 72 towns.¹¹

To gauge the relative environmental outcome of conservation commission decisions and actions we analyzed individual development projects within each sampled town. In Massachusetts the most common and extensive project is the single-family housing subdivision. (We also examined commercial projects, which were far less numerous, but those data are not examined in this paper.) Within each town we examined up to 10 new single-family home projects permitted by conservation commissions between January 2000 and August 2003.¹² To limit the influence of any single subdivision design (builder) we examined no more than five individual single family homes per given subdivision. Thus, our unit of analysis is the town-single-family house plan. We digitalized each project engineering plan and analyzed it in terms of its

⁹ By analogy, imagine that EPA were to empower localities, rather than states, with the responsibility of writing and enforcing permits under the Clean Water Act. Similarly, consider the possibility of the Department of Agriculture turning over responsibility for national forest management to the states, as proposed recently by the Bush Administration.

¹⁰ Coastal wetlands differ significantly from freshwater wetlands, requiring different regulations, performance standards, etc.

¹¹ Statistical analysis confirmed that our sample was geographically, demographically, economically, and environmentally a random sample of Massachusetts' towns.

¹² To prevent selection bias, upon visiting each town, we asked each conservation commission to provide us with the engineering plan from the last 10 single-family home projects approved. This selection protocol prevented the conservation commission from selecting "good" or "interesting" projects – that is, projects that they thought might reflect well on their town or otherwise match what they believed to be our preferred type of permit.

protections to wetlands resources (i.e., environmental outcomes).¹³ In total, we collected data for nearly 600 wetlands permitting decisions for new single-family home constructions, although as evident below, not all of these allowed for measurement of the environmental outcomes we study in this paper.

To measure environmental outcomes we had to look for conservation commission decisions and actions that reflected consistent and reliable relative levels of environmental protection. In the area of wetlands protection, wetlands science suggests three meaningful measures: (1) amount of jurisdictional wetlands filled, (2) amount of uplands adjacent to jurisdictional wetlands (i.e., buffer zone) disturbed, and (3) the distance of development to the wetlands.

Analyses

The analyses below mostly entail a series of nonparametric difference of medians and difference of means tests between the environmental outcome measures in towns with wetlands bylaws and towns without wetlands bylaws.¹⁴ Our expectation is that towns with bylaws – that is, those representing more aggressive CBEP efforts – will permit projects with less impact to protected wetlands resources – that is, they will lead to improved environmental outcomes. Evidence consistent with this expectation will support a conclusion that CBEP does, as its advocates suggest, produce environmental quality improvements beyond what would otherwise occur from a more uniform program implemented at a higher level of government.

We begin our analysis by looking at the extent of wetlands “disturbed” by a development project. The MWPA does allow for some wetlands loss. There are, for example, limited projects (e.g., driveway access crossing wetlands) that allow some wetlands areas to be filled. Other provisions allow for the destruction of up to 5,000 square feet of wetlands on the assumption that such “small” disturbances do not harm environmental goals. Towns with bylaws, however, can and often do disallow such

¹³ For each project, the permit includes an official engineering plan that defines the scope of construction and delineates any impacts to wetland resources. We photographed a digital image of this approved plan and imported it into GIS software, which enabled us to analyze the permitted work and to take measurements of any relevant impacts.

¹⁴ We use nonparametric tests, rather standard t-tests, due to the non-normality of the environmental outcome data distributions.

“limited projects” – rejecting the argument that such disturbances have no significant impact. Thus, if local environmental efforts – as represented by wetlands bylaws – are effective, we should expect to see less wetland fill in bylaw towns.

Do fewer bylaw town projects involve wetlands destruction compared to non-bylaw towns? Our data show that there is no appreciable difference. Less than 10% of the development projects we studied (non-bylaw or bylaw towns included) involved any wetlands destruction. In fact, the raw numbers (percentage of projects with wetlands fill) run counter to our expectation that towns without bylaws would permit more direct disturbances to wetlands. A corresponding one-tail difference of proportions test yields a 67 percent likelihood that the apparent difference shown in Table 1 is not statistically different.

Table 1: Wetlands Disturbance by Project

	No. of Projects with Wetlands Fill	Total No. of Projects	Percent of Projects with Fill
No Bylaw	15	183	8.2%
Bylaw	22	234	9.4%
	Diff. of Proportions: $z=-0.43$ $p>0.67$ (one-tail)		

When we look at the actual quantity of wetland areas filled *on those projects where such destruction actually occurred* we find a similar result. Where the median area of wetlands filled in non-bylaw towns is about 100 square feet greater than in bylaw towns, the mean area is correspondingly lower by 100 feet. This difference in directionality between medians and means is due to a few very large projects in the bylaw towns that skews the data distribution. When we test for the apparent differences in both medians and means (in the latter instance, controlling for the size of wetlands areas by project) the results do not reach statistical significance.

Table 2: Wetlands Area Filled per Project

	Median Number of Square Feet of Wetlands Filled per Project*	Mean Number of Square Feet of Wetlands Filled per Project**	N
No Bylaw	949	1399	15
Bylaw	852	1489	22
	*Mann-Whitney Test ($z> 0.37$) $p>0.71$ **CANOVA (Partial F = 0.17) $p>0.68$		

These results may be explained by the fact that the MWPA has created a powerful norm against wetlands destruction that is widely observed – that is, irrespective of whether towns have adopted bylaws. It seems that the gratuitous, yet legal, filling of wetlands has largely stopped, with such work now being the exception. It is interesting to note that all 37 instances of direct wetlands disturbance involved areas of less than 5,000 square feet – as we would expect given the MWPA regulations. Thus, with respect to this measure, wetlands bylaws may not be able to accomplish much additional protection at the margin.

Another aspect of wetlands loss involves so-called wetlands replication, in which “new” wetlands are created to replace those lost to development. There is a very real question as to whether it is possible to engineer a wetland. A recent study suggests that fewer than half of all constructed wetlands actually function as wetlands, and that few if any attain the full functionality of the original natural wetland (NAS, 2001). To partially correct for this failure rate, the U.S. Army Corps of Engineers recommends that replication wetlands replace wetlands fill at some ratio greater than 1:1. Better environmental outcomes, therefore, can be expected with higher ratios (3:1 and 6:1 are commonly mentioned). Therefore, in those instances where wetlands replication is allowed to replace wetlands filled for development, the ratio of replication area to loss area may be a useful environmental outcome measure.

Accordingly, we would expect that towns with wetland bylaws would require larger ratios of wetland replication-to-wetlands fill for a given project. The result shown in Table 3 fails to show a statistically significant difference. Although median replications that occur in a bylaw town are almost 30% larger than those in non-bylaw towns per unit area of wetlands disturbed, the small number of such replications could mean that this difference could be a chance occurrence. These data suggest that towns with the ability to produce more effective environmental outcomes through higher wetlands replication ratios are not taking advantage of the opportunity.

Table 3: Wetland Replications

	Median Ratio of Wetlands Area Replicate to Area Disturbed*	Mean Ratio of Wetlands Area Replicate to Area Disturbed)	N
No Bylaw	0.97	1.33	15
Bylaw	1.25	1.31	22
*Mann-Whitney Test (z= -0.53, Prob > z = 0.30)			

The second environmental outcome measure we consider is the degree of protection for the upland areas adjacent to wetlands, often referred to as “buffer-zones.”¹⁵ Because these lands (extending 100 to 300 feet from wetlands) are prime building areas, the MWPA does not protect them. This gap in the legislation likely reflects the influence that development interests exhibited at the time the state enacted the MWPA. To fill this void in the state statute, approximately 140 of the 162 Massachusetts bylaw towns protect the buffer zone around wetlands. Of the 112 bylaw towns that are non-coastal (i.e., the ones examined in this study), 97 explicitly protect buffer zones. This large percentage is likely explained by a decade-long effort by environmental organizations such as the Massachusetts Audubon Society and Massachusetts Association of Conservation Commissions to educate the public on the ecological importance of buffer zones.

The question we address here is whether bylaw towns actually extend greater protection to buffer zones? In Table 4 we compare the average (median) buffer width and the average (median) minimum buffer zone width in projects conservation commissions permitted in bylaw and non-bylaw towns.¹⁶ Both measures yield substantively and statistically significant results. The average minimum buffer zone width — a measure of the closest point of development to the wetland — is effectively double in bylaw towns. Bylaw towns also have average buffer zone widths that are almost 30% larger than those in non-bylaw towns.

¹⁵ This is an unfortunate misnomer because it suggests that this land area lacks intrinsic ecological value in wetlands protection, despite scientific evidence that shows that precisely the opposite is the case.

¹⁶ The average buffer zone width is the average distance of development to the wetlands across the entire project area. The minimum buffer zone width is the closest distance of development to the wetlands.

Table 4: Buffer Zone Protection

	Average (median) buffer zone width per project*	Average (median) Minimum buffer zone width per project**	N
No Bylaw	36 feet	12 feet	169
Bylaw	46 feet	26 feet	215
	*Mann-Whitney Test (z= -3.055, Prob > z = 0.001) **Mann-Whitney Test (z= -4.057, Prob > z = 0.000)		

Another important measure of environmental outcomes in wetlands protection is the distance of the nearest structure (i.e., house, garage, pool) to the wetland. Not only does the proximity of the structure reflect the intrusiveness of development of the project, it is also a good indicator of the degree of subsequent human encroachment into the wetland area. In Table 5 we compare the median distance of the closest structure to the wetland for projects approved in bylaw and non-bylaw towns. Here we see that bylaw towns do “place” structures further from the wetland and that the difference is statistically significant. On average, the median distance from the structure to the wetlands is 10 feet greater in towns with bylaws.

Table 5: Structure Distance to Wetlands

	Median Structure to Wetland Distance (Feet)	Mean Structure to Wetland Distance (Feet)	N
No Bylaw	59 feet	69 feet	186
Bylaw	69 feet	81 feet	232
	*Mann-Whitney Test (z= -3.055, Prob > z = 0.000)		

The existence of redevelopment projects in our data provides a useful check on these results. The analyses discussed above reflect only projects developed on previously undisturbed lots. Redevelopment projects, as the name suggests, involve previously developed properties where the land has already been cleared and a new project is built to replace the old one. Since the original development is usually decades old, the pattern of disturbance is extensive, as placement of structures near wetlands was commonly allowed. Accordingly, we would expect that there should be no difference between the *original footprint* of development for such projects in bylaw towns and corresponding *original* projects in non-bylaw towns. However, we would expect that the subsequent redevelopment project in bylaw towns would reflect an attempt to improve the environmental outcome. This might manifest itself in form of (1) reclaimed buffer zone

areas and (2) the placement of new structures farther from the wetland than structures from the previous development.

If this is indeed the case then buffer zone widths for development projects should be wider in bylaw towns than in non-bylaw towns and the “structure to wetland” distance should be longer in the former compared to the latter. Table 6 presents the data for buffer zone widths. Both the median buffer zone width and the median minimum buffer zone width measures suggest that there is some marginal difference among our towns, consistent with our expectations. Projects conservation commissions permitted in bylaw towns do appear to show an additional buffer zone width of about 14 feet. The median buffer zone width is at the margin of statistical significance, while the median minimum width is not.

Table 6: Redevelopment and Buffer Zone Protection

	Median buffer zone width per project* (redevelopment)	Median Minimum buffer zone width per project** (redevelopment)	N
No Bylaw	25 feet	13 feet	35
Bylaw	39 feet	17 feet	51
	*Mann-Whitney Test (z = -1.722, Prob > z = 0.043 (one-sided))		
	**Mann-Whitney Test (z = -1.030, Prob > z = 0.152 (one-sided))		

Table 7 compares the structure-to-wetland distances for redevelopment projects. Again the results are suggestive, although not conclusive. Bylaw towns do enforce larger “structure to wetlands” distances on redevelopment projects, but the results are at the margin of statistical significance. This marginal result is not surprising given that redevelopment projects involve project areas that are systematically smaller than those for new development projects. For example, potential buffer zone areas for redevelopment projects are 25% smaller on average than those for new development projects. This greatly constrains options for reclaiming buffer. Nonetheless, our data imply that bylaw towns do attempt to reduce environmental impacts in redevelopment projects when there is sufficient space.

Table 7: Structure to Wetland Distances in Redevelopment Projects

	Median Structure to Wetland Distance (Feet)	Mean Structure to Wetland Distance (Feet)	N
No Bylaw	45 feet	66 feet	36
Bylaw	70 feet	79 feet	65
	Mann-Whitney Test ($z = -3.290$, $\text{Prob} > z = 0.044$ (one-sided))		

Discussion.

Our analyses of local implementation of the MWPA in towns with and without wetlands bylaws provide support for the capacity of CBEP to improve environmental outcomes. In terms of wetlands fill, we found no statistically significant difference between towns with bylaws and those without in terms of either the number of projects permitting fill or the total area of disturbance. At first glance, this might suggest that more aggressive CBEP efforts – as represented by those towns with bylaws – do not generate more protection of wetlands resources. However, we do not think is the correct inference. More relevant in our view is the fact that very few projects overall permitted this type of direct disturbance to wetlands. That is, bylaw or not, very little wetlands filling occurred as part of the projects we sampled, indicating the state statute itself seems to be sufficient for preventing wetlands loss. Thus, this should not be interpreted as a failure of CBEP.

With respect to our second environmental outcome measure – buffer zone protection – our results suggest that more expansive CBEP efforts do deliver on the promise of improving environmental protection. We found that conservation commissions in towns that had adopted bylaws protected on average more than double the buffer zone when using our measure of minimum buffer zone width and by about 30% more when using our measure of the overall average buffer zone width. The added protection in bylaws towns is not only quantitatively large, but it is qualitatively significant. We find a similar result when considering our third environmental outcome measure – distance of structure to the wetlands. Here too, we found that projects town conservation commissions permitted in bylaw towns had greater distances between the development and the wetlands resources on the project site.

An important presumed advantage of CBEP efforts is that they provide an opportunity for communities to do more than the minimum established by a federal or state regulatory floor. Our data provide direct evidence that this has occurred in the context of protecting wetlands resources in Massachusetts. Through the bylaw process, towns are protecting resources not under the jurisdiction of the MWPA, and to a greater degree than towns without bylaws. This suggests that CBEP does, in fact, provide the outcome benefits its advocates have long claimed.

5. Conclusion

CBEP has been put forward by reformers of various political and ideological persuasions now for over a decade. Advocates of CBEP efforts argue that they will lead to both procedural and environmental quality benefits. Our review of the existing literature finds that most attention has been given to the procedural outcomes of CBEP efforts, while there is a paucity of information on environmental quality outcomes. This is an important missing piece. After all, the ultimate goal of reforms such as CBEP is to not only improve decision-making processes, but to enhance environmental quality.

In this paper, we provide new evidence on the outcomes of CBEP activities, by studying the local wetlands permitting decisions in Massachusetts. The MWPA's devolution of implementation and enforcement responsibility to town conservation commissions, coupled with the home rule provision of the Massachusetts' state constitution, sets up a case where towns have the opportunity to move beyond the regulatory floor established by the MWPA. Because nearly half of the towns have passed wetlands bylaws, which by definition must include greater protections than the state statute, we have a clear example of towns expressing their desire to do more to protect the wetlands resources within their borders. That is, we have a good case of CBEP to study. We find in our analysis that towns with these bylaws do in fact incorporate more protections for wetlands than those without such bylaws when permitting new single-family home construction projects. This result holds for multiple outcome measures. The fact that these CBEP efforts, which go beyond the "implementary" CBEP created by the MWPA, result in better environmental outcomes suggests that more expansive

community-based action can produce improved outcomes. This is good news for CBEP advocates.

Future analysis of the Massachusetts wetlands case needs to test more refined hypotheses regarding the potential outcomes of CBEP efforts, moving beyond just comparing environmental outcomes in bylaw and non-bylaw communities. In particular, we think attention should be given to the socioeconomic attributes of the towns. That is, there may be important differences across bylaw and non-bylaw towns that our analysis overlooks. Skeptics of CBEP efforts argue that this approach to environmental policy may ultimately cause significant losses in environmental protection, highlighting two mechanisms that might infect community based decision-making and produce poorer environmental outcomes: race-to-the-bottom dynamics and not-in-my-backyard (NIMBY) dynamics.

The argument for a race-to-the-bottom dynamic among communities is compelling. Municipal government and community politics focus on economic growth, while the presence of organized interests capable of opposing development interests is lower than at the state level (Peterson, 1981; Kemmis, 1990; Gould, et al., 1996). Race-to-the-bottom dynamics predict that devolving environmental protection authority to communities will feed a downward spiral in environmental protection within a state. Under the logic of a race-to-the-bottom, CBEP is a prescription for a general (cross-community) decline in environmental protection below what would have occurred under traditional environmental regulation imposed by a state authority (i.e., a regulatory floor). In those instances where a state regulatory floor existed, levels of community environmental protection would decline to the floor, and, perhaps, erode it over time. While the results from the current analysis seem to contradict this hypothesis, it does deserve more careful consideration.

A second theoretical frame that raises questions about whether CBEP will lead to improved environmental quality is NIMBYism. NIMBY dynamics arise from the economists' portrayal of environmental quality as a normal economic good. People will buy environmental quality at the margin according to their preferences, just as they might buy other normal goods. In particular, as wealth increases both the desire and capacity to buy environmental quality (often through local zoning laws and environmental protection

ordinances) and is presumed to grow. Wealthier communities can afford to keep undesirable projects out of town, and, as wealth increases, what these communities deem to be undesirable broadens. Thus, where inequalities exist in the distribution of wealth among communities, disparities will arise in both the desire for and capacity to impose higher levels of environmental protection. The consequence then of NIMBY-driven CBEP may be a bifurcation of communities manifested by a clear pattern of distributional polarization in environmental quality. Wealthy communities will be able to impose “not in my backyard” exclusionary standards that will force environmentally undesirable projects into the “backyards” of less affluent communities, thereby driving environmental quality in the latter down. Our future work will aim to address the race-to-the-bottom and the NIMBYism hypotheses.

In conclusion, we hope this paper encourages additional research on environmental quality outcomes. Though often times difficult to measure, it is essential that reforms such as CBEP are examined in terms of their implications for environmental quality. Good policy means better environmental outcomes, and direct consideration of environmental quality measures such as the wetlands measures analyzed in this paper is necessary before we reach conclusions about the merits of CBEP and other environmental reform initiatives.

References

Abel, Troy D. and Mark Stephan, 2000, "The Limits of Civic Environmentalism," *American Behavioral Scientist* 44(4): 613-627.

Beierle, Thomas C., 1999, "Using Social Goals to Evaluate Public Participation in Environmental Decisions," *Policy Studies Review* 16(3-4): 75-103.

Beierle, Thomas C. and Jerry Cayford, 2002, *Democracy in Practice: Public Participation in Environmental Decisions* (Washington, D.C.: Resources for the Future).

Beierle, Thomas C. and David M. Konisky, 2001, "What Are We Gaining from Stakeholder Involvement? Observations from Environmental Planning in the Great Lakes," *Environment and Planning C: Government and Policy* 19(4): 515-527.

Brick, Philip, Donald Snow, and Sarah Van De Wetering, 2001, *Across the Great Divide* (Washington D.C.: Island Press).

Bush, George W., 2003, "State of the Union Address," January 28.

Center for Strategic and International Studies (CSIS), 1998, *The Environmental Protection System in Transition: Toward a More Desirable Future, Final Report of the Enterprise for the Environment* (Washington, D.C.: Center for Strategic and International Studies).

Chertow, Marian and Daniel Esty, 1997, *Thinking Ecologically: The Next Generation of Environmental Policy* (New Haven: Yale University Press).

Clinton, William Jefferson and Albert Gore, Jr., 1995, *Reinventing Environmental Regulation* White House Policy Paper. (Washington, D.C.: The White House).

Davies, J. Clarence and Jan Mazurek, 1998, *Pollution Control in the United States: Evaluating the System* (Washington, D.C.: Resources for the Future).

Dowie, Mark, 1996, *Losing Ground: American Environmentalism at the Close of the Twentieth Century* (Cambridge, MA: MIT Press).

Finnegan, John R., Jr. and Ken Sexton, 1999, "Community-Based Environmental Decisions: Analyzing Power and Leadership," in: Ken Sexton, Alfred A. Marcus, K. William Easter, and Timothy D. Burkhardt, eds., *Making Better Environmental Decisions: Strategies for Governments, Businesses, and Communities*, (Washington, D.C.: Island Press).

Fiorino, Daniel J., 2000, "Innovation in U.S. Environmental Policy," *American Behavioral Scientist* 44(4): 537-546.

Gould, Kenneth A., Allan Schnaiberg, and Adam S. Weinberg, 1996, *Local Environmental Struggles: Citizen Activism in the Treadmill of Production* (New York: Cambridge University Press).

John, Dewitt, 1994, *Civic Environmentalism: Alternatives to Regulation in States and Communities* (Washington, D.C.: CQ Press).

John, Dewitt and Marion Mlay, 1999, "Community-based Environmental Protection: Encouraging Civic Environmentalism," in: Ken Sexton, Alfred A. Marcus, K. William Easter, and Timothy D. Burkhardt, eds., *Making Better Environmental Decisions: Strategies for Governments, Businesses, and Communities* (Washington, D.C.: Island Press).

Karkkainen, Bradley C., Archon Fung, and Charles Sabel, 2000, "After Backyard Environmentalism: Toward a Performance-Based Regime of Environmental Regulation," *American Behavioral Scientist* 44(4): 690-709.

Kemmis, Daniel, 1990, *Community and the Politics of Place* (Norman, OK: University of Oklahoma Press).

Kempton, Willet M., James S. Boster, and Jennifer A. Hartley, 1995, *Environmental Values in American Culture* (Cambridge, MA: MIT Press).

Leach, William D, and Neil W. Pelkey, 2001, "Making Watershed Partnerships Work: A Review of The Empirical Literature," *Journal of Water Resources Planning and Management* 127 (6): 378-385.

Leach, William D., Neil W. Pelkey, and Paul A. Sabatier, 2002, "Stakeholder Partnerships as Collaborative Policymaking: Evaluation Criteria Applied to Watershed Management in California and Washington," *Journal of Policy Analysis and Management* 21(4): 645-670.

Lowry, William R., 1992, *Dimensions of Federalism: State Government and Pollution Control Policies* (Durham: Duke University Press).

Lubell, Mark, 2004, "Collaborative Environmental Institutions: All Talk and No Action?" *Journal of Policy Analysis and Management* 23(3): 549-573.

Lubell, Mark, Mark Schneider, John T. Scholz, and Mihriye Mete, 2002, "Watershed Partnerships and the Emergence of Collective Action Institutions," *American Journal of Political Science* 46(1): 148-163.

Mazmanian, Daniel A. and Michael E. Kraft, 1999, *Toward Sustainable Communities: Transitions and Transformations in Environmental Policy* (Cambridge, MA: MIT Press).

Murdock, Barbara Scott and Ken Sexton, 1999, "Community-Based Environmental Partnerships," in: Ken Sexton, Alfred A. Marcus, K. William Easter, and Timothy D. Burkhardt, eds., *Making Better Environmental Decisions: Strategies for Governments, Businesses, and Communities*, (Washington, D.C.: Island Press).

National Academy of Public Administration (NAPA), 1997, *Resolving the Paradox of Environmental Protection: An Agenda for Congress, EPA, & the States* (Washington, D.C.: National Academy of Public Administration).

National Academy of Science (NAS), 2001, *Compensating for Wetland Losses Under the Clean Water Act* (Washington, D.C.: National Academy Press).

Oates, Wallace, 2001, *A Reconsideration Of Environmental Federalism*, A draft Paper delivered to the Harvard Environmental Economics and Policy Seminar Series, November 28, 2001.

Paelke, Robert C., 1990, "Environmental Values and Democracy," in: Norman Vig and Michael Kraft, eds., *Environmental Politics in the 1990s*, (Washington, D.C.: CQ Press).

Peterson, Paul E., 1981, *City Limits* (Chicago: University of Chicago Press).

President's Council on Sustainable Development (PCSD), 1996, *Sustainable America: A New Consensus for Prosperity, Opportunity, and a Healthy Environment for the Future* (Washington, D.C.: President's Council on Sustainable Development).

Press, Daniel and Alan Balch, 2002, "Community Environmental Policy Capacity and Effective Environmental Protection," in: Thomas Dietz and Paul C. Stern, eds., *New Tools for Environmental Protection: Education, Information, and Voluntary Measures*, (Washington, D.C.: National Academy Press).

Sabel, Charles, Archon Fung, and Bradley Karkkainen, 2000 "Beyond Backyard Environmentalism" in *New Democracy Forum*, Josh Cohen and Joel Rogers, eds. (Boston: Beacon Press).

Sabel, Charles, Archon Fung, and Bradley Karkkainen, 1999, "Beyond Backyard Environmentalism," *Boston Review* 24(5): 4-11.

Shutkin, William A., 2000, *The Land That Could Be: Environmentalism and Democracy in the Twenty-First Century* (Cambridge, MA: MIT Press).

U.S. Environmental Protection Agency, 2003, *Evaluation of Community-Based Environmental Protection Projects: Accomplishments and Lessons Learned*, EPA 100-R-02-004.

U.S. Environmental Protection Agency, 1999, *EPA's Framework for Community-Based Environmental Protection*, EPA 237-K-99-001.

Weber, Edward T., 1998, *Pluralism by the Rules: Conflict and Cooperation in Environmental Regulation* (Washington, D.C.: Georgetown University Press).

Whoriskey, Peter, 2004a, "Progress Minimal On Bay Pollution," *Washington Post*, August 21.

Whoriskey, Peter, 2004b, "Oxygen Levels In Bay Disputed;," *Washington Post*, July 23.

Yandle, Bruce, 1997, "Environmental Regulation: Lessons from the Past and Future Prospects," In: Terry L. Anderson, ed., *Breaking the Environmental Policy Gridlock* (Stanford, California: Hoover Institution Press).