Pergamon

Political Geography 18 (1999) 477–508

Political Geography

Troubled water? Acquiescence, conflict, and the politics of place in watershed management

Philip E. Steinberg[a,*], George E. Clark[b]

[a]*Department of Geography, Florida State University, Tallahassee, FL 32306-2190, USA*
[b]*Graduate School of Geography, Clark University, Worcester, MA 01610-1477, USA*

Received 3 March 1998; received in revised form 9 October 1998; accepted 12 November 1998

Abstract

Controversy surrounds proposed revisions in access and recreation policy at central Massachusetts' Wachusett Reservoir, a crucial source of drinking water for metropolitan Boston. This policy conflict illuminates a broader tension between rural and exurban resource-supply areas and metropolitan areas that are committed to resource extraction and urban growth. Boston dominates the reservoir region and extracts its resources, while less powerful local residents disagree with and sometimes protest against policies detrimental or perceived to be detrimental to their interests. Despite this tension, data gathered from surveys at the reservoir, supplementary interviews, archival research, and attendance at public meetings reveal that many potential sites of acrimony are characterized by positive attempts to reclaim place rather than direct opposition to outside domination. Findings suggest that residents in the reservoir region have attached their own values to the reservoir, including both rational valuation of specific non-drinking-water benefits and non-instrumental valuation of the reservoir as an integral part of residents' lifeworlds. Although tensions persist between Boston and the Wachusett region, area residents' complex valuation of the reservoir as a space of utility and a place of everyday life suggests opportunities for consensual resource coalitions and initiatives.

Keywords: Watershed management; Social movements; Sense of place; Non-instrumental rationality; Wachusett Reservoir

* Corresponding author. Tel.: + 1-850-644-8378; fax: + 1-850-644-5913; e-mail: psteinbe@coss.fsu.edu

0962-6298/99/$ - see front matter
PII: S0962-6298(98)00111-5

Behold! from yonder distant lake,
A stream, our city now supplies!
We bid it welcome, come partake,
To-day its waters greet our eyes!

From a hymn written for the 1848 festival celebrating the opening of Boston's first public water supply, drawing on water from Lake Cochituate in then-rural Natick (transcribed from a program reprinted in Nesson, 1983: plate 2).

Introduction: the critical water resource conflict narrative and beyond

Few resource conflicts better express the connection between social power and environmental transformation than controversies surrounding the construction and maintenance of water distribution networks. Complementing the classic work by Wittfogel (1957) on hydraulic civilizations are more recent theoretical considerations of how legal regimes, social and cultural institutions, urban–rural relations, and political–economic restructuring relate to the practices of water resource development and management (Goldfarb, 1988; Ingram, 1990; Wescoat, 1984; White, 1969).

The expansion and operation of large metropolitan water supplies, an issue that touches on all of the above themes, has been the focus of empirical work on the relationship between water development and social power. While the best known of this empirical work has focused on the relatively arid western United States (where the scarcity of water and the nature of the prior appropriation doctrine has led to particularly intense water resource struggles (Hundley, 1992; Reisner, 1987; Worster, 1985)), similar histories of public water supply expansion have been documented in the East, including Boston (Nesson, 1983), New York (Weidner, 1974), Philadelphia (Albert, 1987), and a range of east coast municipalities (Blake, 1956).

While each of these case studies of water resource development has its own particular emphasis, we group them here under the rubric of the critical water resource conflict narrative. This narrative is essentially populist, in that complex relations of cooperation and confrontation among various social groupings are reduced to an unidirectional process by which a superior place dominates, disrupts, and extracts resources from a subordinate place.[1] The story typically told in these works is one in which an alliance of national and regional real estate, finance, and other interests forms a growth coalition based upon continued development in urban centers. Arguing for efficiency, job creation, the rights of the many over the few, and the pre-

[1] After Kitching (1982), we define populism as an analytical approach that attributes the misery of peripheral regions to the disruption of pre-existing social systems by extractive core regions (see also Watts, 1993). Although the term is used by Kitching to critique a common view of Third World deprivation, we believe that a similar perspective—wherein complex social conflict among interest groups is reduced to the domination of one 'place' by another—also characterizes many of the case studies of metropolitan US water resource extraction systems.

cedence of 'higher' (more economically productive or socially 'beneficial') uses of scarce resources, the urban growth coalition dominates a regional hinterland, physically uprooting its population, flooding its land, and destroying the livelihoods of its people. The associated transfer of water resources exacerbates spatial and social inequality among competing regions, and it thrives on the application of resource economics and resource law (Anderson, 1983; Carr and Crammond, 1995; Ciriacy-Wantrup, 1967; Kneese and Brower, 1968; Meyers et al., 1988). Big cities, representing concentrated wealth, population, and development interests, and aligned with powerful governmental entities (especially in the case of Federal development of the western United States) are pitted against agrarian or pastoral regions with little political power. Resistance is replete with passionate appeals to the rural people's tie to the land, but it is rarely successful.

According to this populist narrative, there is a clear division between 'us'—the rural/exurban victim—and 'them'—the urban exploiter. 'Us' is portrayed as local, ecologically holistic, small-scale, and sustainable, and 'them' is just the opposite. 'They' are using 'our' nature for 'their' development. 'We', in turn, must regain control of 'our' nature and oppose 'their' development. Not only does this story obscure social difference within a geographical region (e.g. real estate interests in the rural area near a reservoir may stand to gain from urban growth); it also assumes unitary and non-contested definitions of both nature and development. The competition is classically posed as one between 'nature' (or a nature-oriented way of life) in the rural areas and 'development' in the city or in heavily capitalized agribusiness. Even a scholar such as Worster (1994), who disavows populism and embraces an explicitly structuralist analysis, highlights the contrasts between environmentally and socially destructive modern water management systems and the communal management system traditionally practiced by the peoples of northern New Mexico. The conflict is still scripted as one between a local, ecologically sustainable system of water-use associated with harmony and stability and a contrasting system, imposed from outside, that brings disruption and, in the long-run, social and environmental destruction.

Such narratives may, in some instances, accurately depict the situation as seen by resistance forces in the supplier communities. The Springfield Union's report of a 1922 public hearing to discuss the construction of the Quabbin Reservoir, the largest reservoir in the metropolitan Boston system, bears out this populist perspective:

> Fighting to save their homes, to protect houses and properties that for generations have been owned by many families here, more than 500 persons [appeared, arguing] that it was unfair to take away [their] land for the benefit of another part [of the state]. The residents declared that they were fighting for the homes of their ancestors and hurled defiance at the group or groups that ventured to take away all that was dear to them and give money in return (quoted in Nesson, 1983: 49).

Nonetheless, while this perspective may accurately portray the views of some individuals in the resource-supply zone, narratives derived from such a perspective are likely to be incomplete. Such narratives are likely to overlook social dynamics

internal to each region, and they may divert attention from other, often larger-scale, structural forces responsible for shifts in the power capabilities of 'pro-development' and 'anti-development' forces. Additionally, they tend to underestimate the potential for positive partnerships between resource-providing and resource-consuming communities, stressing conflictual relations in formal political arenas while de-emphasizing the more subtle politics of everyday life.

In an attempt to move beyond (or expand the analytical depth of) the critical water resource conflict narrative, a number of geographers have turned their attention away from the conflict as experienced by the beleaguered residents of the resource-supply zone and have instead focused on politics from the perspective of the resource-receiving region. These studies examine such topics as compromises and conflicts among the personnel and interest groups that constitute the urban growth coalition, the justifications promoted by its members for dominating the resource-supply region, and the structural political–economic contexts within which pro-development forces may or may not be able to exercise their social power in a distant region (Emel, 1990; Gandy, 1997; Gottlieb and FitzSimmons, 1991; Swyngedouw, 1997; Walker and Williams, 1982). While we support most of the conclusions reached in this literature, we take a somewhat different tack, turning our attention back to the resource-supply region, but with an analytical perspective richer than the populism of the critical water resource conflict narrative.

One leg of our analytical perspective builds upon recent writings in political ecology regarding the relationship between nature and development. As Worster's writing on New Mexico water management systems demonstrates, the critical water resource conflict narrative implies a radical distinction between nature and development: the 'nature' of the rural area is pure and its transformation would inevitably serve development which, in turn, is inevitably oppressive to rural regions.

Political ecologists, by contrast, call for the rejection of unitary definitions of both nature and development and, consequently, the rejection of a necessarily zero-sum conflict between the project of environmental conservation and that of socio-economic development. While the transformation of nature is an essential aspect of capital accumulation (FitzSimmons, 1989; Peet, 1985; Smith, 1990; Smith and O'Keefe, 1980), nature is continually being reconstructed by different social actors for different ends; the discursive and physical manipulation of nature may be a means of resistance as well as one of hegemonic power (Rocheleau and Ross, 1995; see also other contributions in Neumann and Schroeder, 1995). Similarly, while a number of critics have recently asserted that development as a project is a means for incorporating those being 'developed' into the capitalist world-economy in a subordinate position (Crush, 1995; Sachs, 1992), others note that aspects of the development and commodification process may provide tools for resistance, empowerment, and distributive justice (Bebbington, 1996; Rangan, 1996; Zimmerer, 1996; see also other contributions in Peet and Watts, 1996a, and also Feitelson, 1998). Most work along these lines has been conducted in the 'Third World', but we see no reason why a similar perspective cannot be applied in peripheral regions of the 'First World' where analogous—if empirically unique—processes of socio-environmental transformation and resource extraction occur.

The second leg of our analytical perspective is grounded in a critical understanding of the 'politics of place'. Agnew (1987) defines place as having three components: *location* (a place's position within wider-scale socio-spatial processes); *locale* (the aspects of a place constituted by everyday interactions in a given area); and *sense of place* (the thoughts and feelings that motivate individuals to act). The critical water resource conflict narrative emphasizes dynamics in the *locational* aspect of place (e.g. wider-scale power dynamics leading to growth in the metropolis that mandates exploitation in the periphery) while portraying the *locale* and *sense of place* aspects as static (e.g. local resistance driven by deeply held commitment to the community and led or subverted by local leaders with particular interests).

In contrast, the case study of Wachusset Reservoir that follows demonstrates that residents of resource-extraction zones may respond to the pressures of *location* by changing or attempting to change the *locale* or *sense of place*. That is, they may respond to development and the related transformation of nature by adapting their everyday practices (such as civic participation or recreation in the case of *locale*, or opinions, beliefs, or feelings in the case of *sense of place*) in order to reclaim a place as their own. The critical water resource conflict narrative's tendency to emphasize the *location* element at the expense of *locale* and *sense of place* results in a scenario of rural/nature versus urban/development that oversimplifies the picture. As Peet and Watts (1996b: 36–37) write:

> Social struggles over land and resources, the environmental conditions of human existence, erupt in a profusion of styles and intensities.... As well as being practical struggles over livelihood and survival, they contest the 'truths', imaginations, and discourses through which people think, speak about, and experience systems of livelihood.

Although resource conflicts include a material contest over access to resources, the dominated communities' survival strategies are also both more profound and more subtle. At Massachusetts' Wachusett Reservoir, as is detailed below, there is a surprising absence of overt antagonism in some of the spheres where one would most expect its presence. But this does not mean that discord is nonexistent. Beneath the apparent consensus among concerned parties lies an arena of tension and negotiation.

This article demonstrates that conflicts over water resources cannot be reduced to a simple competition between local, holistic systems and metropolitan resource sinks. In this case, the creation of a metropolitan water resource itself produces an aesthetic and recreational resource that is enjoyed and valued by the residents of the resource-provider zone. Furthermore, this new aesthetic and recreational resource takes on a crucial role in forming the community identity and lifeworld of the rural/exurban area's residents. Rural/exurban resource providers and urban resource consumers can thus develop a shared interest in maintaining the reservoir and its surrounding managed lands, and, indeed, the Wachusett case demonstrates that residents of the resource-supply region respond to outside interventions by implementing a complex, place-based politics of everyday life, rather than reactive populist opposition. At the

same time, we do not mean to suggest the total absence of underlying tension. Rural residents are aware that the greater power of the urban sector exists just beneath the surface, and they view changes in reservoir management with suspicion, poised to assert their interests should the agents of the metropolitan resource consumers attempt to implement management changes that might interfere with the values ascribed to the reservoir by the resource-providing community.

The case study detailed below demonstrates that while the relationship between resource-providing rural/exurban communities and resource-consuming urban communities is not totally harmonious, neither is it a zero-sum game in which one imperative is necessarily opposed against the other. Rather, in a context of mutual suspicion and mutually acknowledged power inequality, all sides may gain something from the redefinition of both environment and development and may become stakeholders in environmental 'improvement' projects.

Recreation and the Wachusett Reservoir watershed

Construction of the Wachusett Reservoir began in 1896, with the placement of a 63 m (207 ft) high and 434 m (1423 ft) long dam just above the rural Massachusetts mill town of Clinton, at the point where the Stillwater and Quinapoxet Rivers merge to form the Nashua River, a tributary of the Merrimack, which, in turn, flows into the Atlantic Ocean at the state's northeast corner (Fig. 1). Twelve years after construction was initiated, the reservoir was filled, submerging portions of Clinton and the neighboring towns of Boylston, Sterling, and West Boylston. At the time, Wachusett was one of the largest artificial reservoirs in the world, with a surface area of

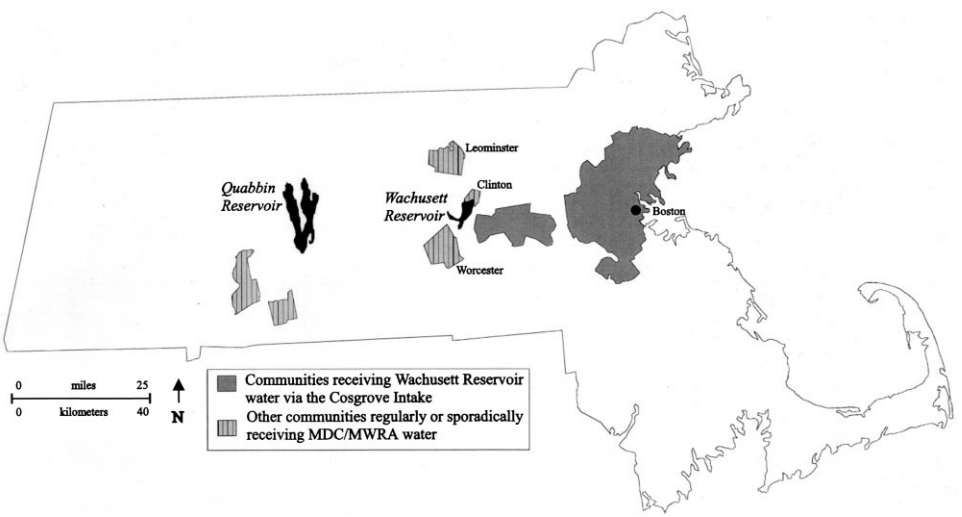

Fig. 1. The State of Massachusetts and the MDC/MWRA water-supply system. Major reservoirs and recipient communities.

16.1 km^2 (6.2 square miles), 60 km (37 miles) of shoreline, an average depth of 13.4 m (44 ft), and a holding capacity of 246 billion liters (65 billion gallons). Presently the reservoir has an average output of 1.2 billion liters (309.5 million gallons) per day, practically all of which is directed to Boston, 51.5 km (32 miles) to the east, and its suburbs (MDC/MWRA, 1991b: 2.1, 2.5).

The reservoir is operated by the Metropolitan District Commission (MDC), a multipurpose agency with a $50 million annual budget that develops and manages a wide variety of public resources serving the Boston metropolitan area, ranging from Boston Harbor lands and areas of the Atlantic Ocean shoreline to Boston-area bandshells, parkways, skating rinks, athletic fields, playgrounds, and zoos (Dineen, 1997). Since 1946, the waters of Wachusett Reservoir have been supplemented with those from Quabbin Reservoir, a 97.6 km^2 (37.7 square mile), 1.6 trillion liter (412 billion gallon) reservoir in western Massachusetts, also managed by the MDC (MDC/MWRA, 1991a: 2.1). A 39.6 km (24.6 mile) aqueduct transports water from Quabbin through the Ware River watershed, where an intake contributes additional water, and into Wachusett. The system is one of the few major municipal surface water systems in the United States that provides drinking water without filtration, in large part due to the relative lack of industry or intensive agriculture and high levels of MDC land ownership in the three water-supply watershed (MDC/MWRA, 1992).

A small percentage of the system's water is drawn directly from the two reservoirs to meet local needs; three western Massachusetts communities receive their water via a small aqueduct heading southwest out of Quabbin, and Clinton draws water directly from Wachusett. Additionally, the central Massachusetts cities of Leominster and Worcester retain rights and facilities for pumping from Wachusett, although, due to the cost of transporting water to these cities, Worcester has never exercised its rights and Leominster has drawn Wachusett water only in periods of extreme drought. Aside from these small local diversions, the bulk of the system's water is withdrawn from the reservoir at Cosgrove Intake, next to the Wachusett Dam. From there, another state agency, the Massachusetts Water Resources Authority (MWRA), directs water through a series of aqueducts to some 2.4 million customers in 40 communities to the east, including Boston and most of its suburbs.[2] The MDC's Division of Watershed Management is financed entirely by management fees paid to it by the MWRA, which in turn is funded entirely by ratepayers in the recipient communities (Roberts, 1990). In effect, the Division manages the reservoir system on behalf of the metropolitan Boston water consumers, who live in watersheds entirely disconnected from those of the water-supply reservoirs and their effluent streams.

Following 1989 amendments to the Federal Surface Water Treatment Rule (40 CFR 141, subpart H), the MDC elected to pursue a waiver from requirements that would force it and other currently unfiltered surface water systems to install costly

[2] For this article, recipient communities within the MDC–MWRA water supply system are defined as the 40 communities that receive water via the Cosgrove Intake. Clinton, Leominster, Worcester, and the three communities west of Quabbin (Chicopee, South Hadley, and Wilbraham) all have fundamentally different relationships with the MDC and with Wachusett Reservoir.

filtration equipment. As part of this effort, the MDC and the MWRA developed a series of watershed protection plans in the early 1990s (MDC/MWRA, 1991a, b, 1992). These documents note that while the Quabbin watershed is the largest contributor of water to the system, most water quality threats at this time are in the Wachusett watershed. In comparison with Quabbin, the Wachusett watershed is less protected and more intensively used, and contaminants that enter the reservoir have relatively little time to degrade or settle out before entering the Cosgrove Intake on the way east to Boston (Camp, Dresser and McKee, Inc., 1994; MDC/MWRA, 1991a, b; Zilligen, 1997).

The watershed protection plans call for new attention and funding for pollution prevention through a range of programs including public education, forest management, shoreline vegetation, erosion control, animal and waterfowl management, policing, and provision of assistance to watershed towns interested in implementing restrictive zoning ordinances. Additionally, Massachusetts' state government has supported the MDC's efforts to achieve water purity through legislation and regulatory changes. In 1992, the state legislature passed the Watershed Protection Act, more commonly known as the Cohen Bill (MGL ch. 92, sec. 107A), a highly contested law designed specifically to protect the three supply watersheds in the MDC/MWRA system. The Cohen Bill establishes development restrictions in buffer zones surrounding tributaries, surface waters, flood plains, vegetated wetlands, and some aquifers in the three watersheds, as well as around the reservoirs themselves. Additionally, in 1995, Massachusetts' Department of Environmental Protection (DEP) approved a controversial revision of its sanitary regulations designed to ensure that residential septic systems do not violate Title V of the state environmental code. The new rules require that before a home may be sold, the seller must inspect and, if necessary, repair or replace residential septic systems at his or her own expense.

The State supported its new watershed regulations with substantial financial backing. Following revision of the septic system regulations, the State appropriated $30 million to help low- and moderate-income home-owners pay for septic system repairs. The State and the MWRA also agreed to pay $37.2 million toward a $58.5 million project to provide sewer hookups for 4000 homes in portions of the Wachusett watershed towns of Holden and West Boylston. Additionally, the state legislature passed bond bills in 1983, 1987, and 1992, allocating a total of $168 million for purchasing land in the three water-supply watersheds. By the end of 1996, $59.7 million of these acquisition funds had been spent, resulting in an increase in MDC land ownership from 54.3 to 56.8% of non-reservoir land in the Quabbin watershed, an increase from 31.3 to 36.8% in the Ware River watershed, and an increase from 7.9 to 16.8% in the Wachusett watershed. The bulk of the remaining funds are to be spent in the Wachusett watershed, with a goal of at least 25% land ownership there (MDC, 1997).

The Wachusett Watershed Protection Plan identified recreational activities on watershed land as having a 'moderate' impact on reservoir water quality (less significant than septic system leaks, urban runoff, or waste facilities, but more significant than road salting, barnyards, or erosion) (MDC/MWRA, 1991b: 4.5; MDC, 1996: 38–74). To better control these recreational impacts, the MDC undertook a

comprehensive overview of recreation policies, which included a review of existing literature, a survey of other municipal reservoir systems' recreation policies, and a visual survey of recreational uses and impacts on MDC property in the watershed. The final component of this process, a survey of recreators on MDC land and of individuals whose homes abutted MDC property, was conducted by the authors of this article and included structured interviews with 765 recreating parties and in-depth interviews with 18 abutting households.[3] Recognizing "the inherent conflict between watershed protection and public use of [watershed lands]" (MDC, 1996: 144), the MDC held a series of meetings, workshops, and hearings with town officials, representatives of user groups, and the general public. The recreation plan that eventually resulted, the Wachusett Watershed Public Access Plan (MDC, 1996), called for a series of changes in recreation policy and, while the changes were generally accepted, they generated pockets of intense controversy.

The basis of underlying conflict

A brief profile of the Wachusett Reservoir region reveals both its differentiation from the water-consumption zone to the east and its character as a particularly stable region that facilitates attachment to place (a point considered in greater detail below). The reservoir lies just over an hour west of Boston, in the towns of Boylston, Clinton, Sterling, and West Boylston, while the watershed also includes significant portions of four other towns to the west—Holden, Paxton, Princeton, and Rutland (Fig. 2).[4] Clinton is a compact nineteenth-century milltown, and Holden, Paxton, and West Boylston include areas that are relatively dense suburbs of Worcester, but the bulk of the watershed is rural and exurban, with a mix of dispersed, large-acreage housing, compact village centers, scattered light industry, and second-growth forest on abandoned farmland, interspersed with occasional hay fields and horse farms. According to the 1990 US Census, Princeton, Rutland, and Sterling are 100% rural, while the other five communities all have rural portions. In spite of this, the rural character of the towns diminished somewhat due to the 'Massachusetts Miracle' of the 1980s, when a number of farms were subdivided to provide spacious housing for commuters to firms in Worcester, Leominster, and the towns along Interstate 495, the outer rim of Boston's high-technology suburban research belt. Nonetheless, the towns remain considerably more rural than the Boston suburbs immediately to the east.

[3] Detailed findings from this survey are presented in Steinberg and Clark (1996). As data from the survey is presented in this article, it should be recalled that the survey represents a sample of recreators and individuals whose homes abut reservoir land and does not represent a random sample of watershed residents. However, the consistency of responses across various groups of recreators, as well as confirmation of these findings from the abutter interviews and data sources outside the survey (archival research, key informant interviews, etc.), lead us to believe that the views expressed by survey respondents reflect those of a large percentage of area inhabitants.

[4] Tiny portions of Hubbardston (pop. 2797), Leominster (pop. 38,145), Westminster (pop. 6191), and Worcester (pop. 167,759) are also in the Wachusett watershed. Additionally, it should be noted that all of the on-watershed portions of Clinton are either submerged by the reservoir or on MDC-owned property.

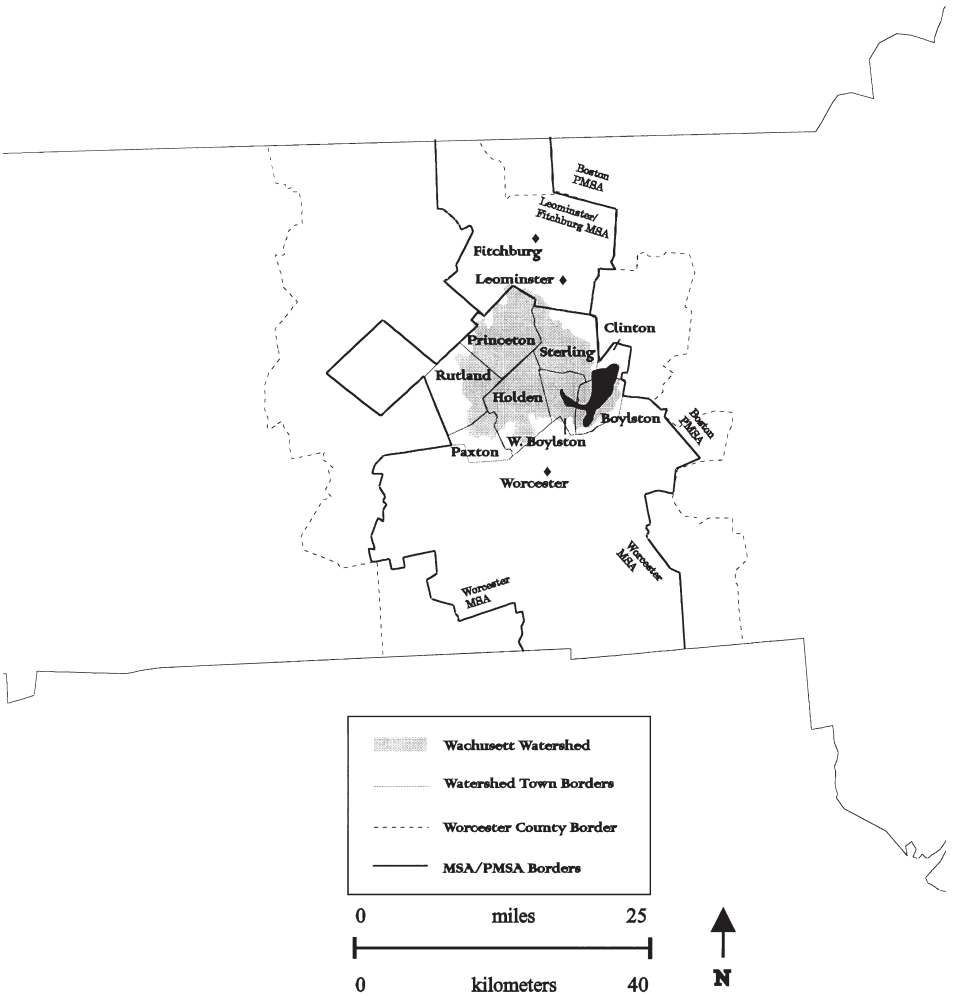

Fig. 2. Central Massachusetts. The Wachusett Reservoir, its watershed, and surrounding communities.

The towns are all part of the Worcester Metropolitan Statistical Area (MSA). Additionally, Princeton and Sterling abut the Fitchburg–Leominster MSA to the north and Boylston, Clinton, and Sterling abut the Boston Primary Metropolitan Statistical Area (PMSA) to the east. The region's insularity and distinctiveness from Boston is further evidenced by the following tables, which demonstrate that residents of the eight watershed towns are less likely to move and more likely to be natives of the state than is the general Massachusetts population (Table 1); that they are more likely to be white and non-Hispanic (Table 2); and that they are much more likely to work in central Massachusetts than in metropolitan Boston, with an

Table 1
Insularity and relative immobility of watershed residents

	Boylston	Clinton	Holden	Paxton	Princeton	Rutland	Sterling	West Boylston	Eight Watershed Towns	Boston Metro Area (PMSA)	Massachusetts
Population	3517	13 222	14 628	4047	3189	4936	6481	6611	56 631	2 870 669	6 016 425
% of population over 5 years old who lived in Worcester County in 1985[a]	84.9	83.3	91.7	87.9	83.8	92.0[b]	86.3	87.6	87.5	78.4[c]	81.4[c]
% who lived in same house in 1969	22.9	25.5	29.7	32.2	15.8	18.1	22.1	27.7	25.6	22.1	22.7
% born in MA	73.9	74.9	75.0	72.3	76.3	83.6[b]	75.9	76.7	75.8	65.5	68.8

Source: US Bureau of the Census, 1990 Census of Population and Housing, Summary Tape File 3A; US Bureau of the Census, 1990 Census of Population and Housing, Population and Housing Characteristics for Census Tracts and Block Numbering Area, CPH-3-95A and CPH-3-341, Tables 17 and 32; US Bureau of the Census, 1990 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, CPH-5-23, Table 15.

[a]Worcester County includes all of the Worcester MSA, the bulk of the Fitchburg–Leominster MSA, small portions of the Boston PMSA and Attleboro–Pawtucket–Woonsocket MSA, and substantial areas in the southwest and northwest corners of the county that are outside any metropolitan area.

[b]These figures represent combined percentages for Rutland and the neighboring town of Oakham (pop. 1515), which shares the Rutland census tract.

[c]This figure for Boston is the percent of Boston PMSA residents who lived in the Boston PMSA in 1985. For Massachusetts it is the percentage of Massachusetts residents who lived in the same county in 1985.

Table 2
Population characteristics in the Watershed Towns, Metropolitan Boston, and Massachusetts

	Boylston	Clinton	Holden	Paxton	Princeton	Rutland	Sterling	West Boylston	Eight Watershed Towns	Boston Metro Area (PMSA)	Massachusetts
% White	98.4	93.7	98.6	97.4	99.4	99.1	98.6	95.4	97.1	87.1	89.8
% Hispanic[a]	0.5	7.8	0.7	0.4	0.8	0.2	1.1	2.8	2.6	4.5	4.8

Source: US Bureau of the Census, 1990 Census of Population, General Population Characteristics, CP-1-23, Tables 1 and 6; US Bureau of the Census, 1990 Census of Population and Housing, Population and Housing Characteristics for Census Tracts and Block Numbering Areas, CP-H-3, 95A, Tables 1 and 8.
[a]Hispanic persons may be of any race.

Table 3
Interaction between watershed residents and Metropolitan Boston

	Boylston	Clinton	Holden	Paxton	Princeton	Rutland	Sterling	West Boylston	Eight Watershed Towns	Boston Metro Area (PMSA)
% of workers who work in Worcester and Fitchburg–Leominster MSAs[a]	75.9	59.8	85.4	87.6	76.5	88.5	74.1	80.1	76.8	< 3.6[b]
% of workers who work in Boston PMSA[a] (% of workers who work in City of Boston)	20.9 (0.8)	36.4 (1.8)	9.5 (1.8)	8.2 (0.9)	17.5 (1.8)	5.8 (0.0)	20.7 (0.7)	16.1 (1.3)	18.6 (1.3)	91.7 (29.1)

Source: US Bureau of the Census, 1990 Census of Population and Housing, Population and Housing Characteristics for Census Tracts and Block Numbering Areas, CPH-3-95A and CPH-3-341, Table 17.

[a]All eight watershed towns lie within the Worcester MSA, although Princeton and Sterling abut the Fitchburg–Leominster MSA and Boylston, Clinton, and Sterling abut the Boston PMSA. The westernmost MDC–MWRA water supply community that receives its water through the Cosgrove Intake—Northborough—is also in the Worcester MSA. The remainder of the system lies within the Boston PMSA, which also includes many other communities, with the MDC–MWRA communities generally being those closest to Boston.

[b]This figure of 3.6% represents the absolute maximum, since it is the figure for all Boston PMSA residents who commute outside the Boston–Lawrence–Salem CMSA (which includes the Boston PMSA plus the Salem–Gloucester, Lawrence–Haverhill, Lowell, and Brockton MSAs). Besides the Worcester and Fitchburg–Leominster MSAs, several other MSAs border the Boston–Lawrence–Salem CMSA, including the Bristol and New Bedford MSAs and the Providence–Pawtucket–Fall River CMSA. It is likely that many of the Boston PMSA residents who commute outside the Boston–Lawrence–Salem CMSA commute to one of these areas and not to the Worcester or Fitchburg–Leominster MSAs, in which case the 3.6% figure should be considerably smaller.

extremely small number of residents making the commute to Boston proper (Table 3).[5]

Interaction in the other direction—from metropolitan Boston to the vicinity of the reservoir—is equally rare. At most, 3.6% of metropolitan Boston residents commute to the Worcester and Fitchburg–Leominster MSAs, although the actual figure is probably much smaller (see Table 3, footnote b). Similarly, our survey of reservoir recreators indicated that only 15.3% of those who recreate at the reservoir reside in Massachusetts communities east of Worcester County and only 6.6% are from the 40 eastern Massachusetts communities that receive water from the MDC–MWRA system. Indeed, a full 25% of recreators come from the four communities abutting the reservoir (with a combined population of just 29,831). Sixty-five percent of recreators live in the 13 communities within a 19 km (12 mile) radius of the reservoir, of which only one, Northborough, is within the MDC–MWRA service area.

These figures indicate that there are two distinct universes of individuals, each interacting with the reservoir in a distinct way. One group consists of central Massachusetts residents who live near the reservoir. Although these individuals utilize the reservoir as a recreational amenity, they are impelled by the water consumers in metropolitan Boston to curtail economic activities so as to preserve water purity. The other group consists of residents and businesses in metropolitan Boston, who reap the benefits of the MDC–MWRA water supply system and who are dependent on the reservoir for their continued growth, but who rarely experience the reservoir as an actual place, surrounded by residences and communities.

In short, the situation in central Massachusetts appears ripe for the antagonism depicted by the critical water resource conflict narrative, in which a powerful metropolis exerts its influence over an adjacent peripheral region, extracts resources from the dominated region, and mandates changes and restrictions in the livelihood options of the region's residents. Our survey, however, found that, at least at the surface level, this was not always the case. In the remainder of this article we examine in further detail relations between central and eastern Massachusetts and how both surficial concordance and underlying tension have been present in debates surrounding the revision of recreation policy at Wachusett Reservoir.

The MDC: beloved bureaucrats?

Our survey, conducted between June 1995 and April 1996, was carried out at a time of heightened stress between the watershed towns and the MDC. While the controversy concerning development restrictions imposed by the 1992 Cohen Bill had diminished somewhat, there were several other points of contention. The new rules for enforcing Title V septic system standards had just been implemented, and

[5] See Hanson and Pratt (1995) for further statistical and anecdotal evidence of how residents of the region perceive central Massachusetts as distinct and distant from metropolitan Boston. One Worcester-area employer said of his employees, "Fifteen miles is like global exploration to these people" (Hanson and Pratt, 1995: 163).

prospective home-sellers were vocally protesting having to spend $600–800 on an inspection and, in many cases, another $10,000 to replace the system. Although the new rules had gone into effect only on 1 April 1995, their impact was already being felt throughout the region by the summer, when the survey commenced. Twenty-four percent of homes inspected in the first 3 months of mandatory inspections failed, and this percentage would likely have been considerably higher were it not for home-owners who knew that their systems would fail and therefore replaced them without initial inspections. Statewide, it was predicted that three-quarters of all septic systems would fail (Detweiler, 1995a). The vice president of the Greater Worcester Board of Realtors reported in August of 1995:

> Home sales were down fifty-two percent for the months of April, May and the first part of June.... Lower real estate sales were definitely caused by Title V.... The first question a prospective buyer asks is whether the home is on a public sewer system. Over ninety percent of Paxton septic systems failed when tested (Detweiler, 1995b).

The regulations were condemned in a letter to the editor of the Holden newspaper as a "use of environmental regulations to control development" (Krashes, 1995), and the vice chairman of the Holden planning board acknowledged that the state-mandated regulations were effectively superseding locally-approved zoning ordinances: "The reality is, people may be unable to develop their lots because of Title V and the Cohen Bill which has nothing to do with Town of Holden regulations" (Detweiler, 1996). A local minister wrote a letter to the West Boylston newspaper complaining of his inability to sell his home due to Title V, concluding his letter, "I wonder if those who put these regulations into place have any idea what affect [sic] it is having on homeowners" (Allen, 1995).

At the same time, there was a highly public controversy over the relative funding contributions by the State, the MWRA, and the Towns of Holden and West Boylston to the sewer project proposed for portions of the two towns. The chair of Holden's board of selectmen[6] proclaimed at an April 1995 selectmen's meeting that he was opposed to Holden making any contribution at all to the sewer project: "The Cohen Bill and Title V regulations restrict property owners.... Holden taxpayers and property owners have given enough and shouldn't have to pay a penny more" (Detweiler, 1995c). The following month he was re-elected. A West Boylston water commission member whom we happened to interview as a recreator at the reservoir informed us (half-jokingly) that members of that town's water commission were considering protesting the combination of Title V with what they saw as insufficient State contributions to the sewer project by holding a "Boston Pee Party" in which they would stand on top of the dam and urinate into the reservoir as a public act of disobedience

[6] The Board of Selectmen is the basic governing unit in New England towns, equivalent to Town Councils elsewhere. Individual representatives are known as selectmen, regardless of gender.

reminiscent of a similar protest 220 years earlier against financial burdens imposed by a colonizing metropole.

Concurrent with these controversies, the Town of Boylston was protesting to the State over the means by which the MDC calculated its Payment In Lieu of Taxes (PILOT) contributions to the town for land that it possessed (Drucke, 1995), while others were questioning the rationale behind the MDC's aggressive land acquisition program and the prices that it paid sellers (Booth, 1996; Curran, 1996a, b; Local Assessors, 1996). Additionally, there was an ongoing lawsuit between the Town of Clinton and the MWRA over a 1992 MWRA proposal to have Clinton pay for its sewage treatment, which previously had been provided free of charge by the MWRA as part of the original reservoir land-taking agreement (Esslinger, 1996; FitzSimmons Kromer, 1992; Gottesman, 1992).

Adding fuel to all of these controversies was a February 1995 article in the Worcester newspaper reporting on an MDC/DEP memorandum that identified an 'us-against-them' mentality among watershed residents as a barrier to development of effective watershed protection programs. According to this article, the draft memorandum stated:

> There is resentment within the watershed communities towards the MDC for historical land takings and, more recently, enforcement of restrictions on the use of watershed lands and MDC regulations. Many residents feel that the watershed communities have made sacrifices for the benefit of other parts of [Massachusetts], and have not been adequately compensated for what they have lost (quoted in Monahan, 1995: B1).

Against this backdrop, we were surprised to find that both residents whose homes abutted MDC land and recreators at the reservoir (the vast majority of whom came from central Massachusetts communities that do not consume Wachusett water) supported more, not less, of an MDC presence and a more proactive MDC land management program in the lands surrounding the reservoir. A relative absence of active hostility toward the MDC as land manager was noted early on in the high level of participation exhibited by potential respondents. Only one of 19 abutting home-owners or renters contacted refused to schedule an appointment for a half-hour interview. Among recreators, an estimated 80–90% of those approached agreed to participate in a 15-min interview. Approximately 60% of those who declined accepted an eight-page mail-in version of the survey, and 61% of those who left the reservoir with the mail-in survey completed and returned it. Additionally, 59% of respondents in the recreator survey and all 18 respondents in the abutter survey agreed to submit their names and addresses to a mailing list that they were informed would be maintained by the MDC.

Positive attitudes toward the MDC were further evidenced by substantive answers to survey questions. On the one hand, there was active resistance to the MDC as an agency that was imposing financial burdens on recreators' own land through Title V.[7]

[7] Although the MDC was not the agency responsible for enforcing the septic system regulations, it was widely recognized as a force behind them, and MDC representatives made presentations at public meetings at which the new Title V regulations were explained.

On the other hand, 62% of all respondents—and 66% of respondents who lived in the watershed towns—responded that they would be willing to pay an annual fee to recreate on the MDC-owned lands around the reservoir. Interestingly, most of those who objected to a potential user fee cited either the government's fiscal irresponsibility or the lack of recreator services provided by the MDC. Only three respondents (out of 765) expressed an unwillingness to pay a user fee because upkeep of the reservoir should be the sole responsibility of its beneficiaries—the Bostonians who receive its water—while two additional respondents suggested that if a fee were introduced residents of the four towns that contain the reservoir should be exempted as reparations for having had a portion of their towns flooded.

When recreators were asked what changes they would like in MDC management, a full 36% of respondents could not think of anything; many respondents specifically stated that they were satisfied with the reservoir and with the MDC's regulations and management activities. Of those who had suggestions, eight of the top 10 responses involved calls for *more* active MDC intervention, control, or service provision. Only two of the top 10 responses—allow canoes and/or electric boats (number 3) and allow dogs (number 10)—implied the relaxation of MDC management (Table 4).

The qualitative survey of those whose homes abutted MDC property revealed similar trends. Abutters in several cases expressed opposition to Title V and the Cohen Bill and demonstrated knowledge that the MDC and the water transfer it facilitates are responsible for these burdens. Nonetheless they, like the recreators, generally exhibited a favorable impression of the agency, both because its landholdings prevented excessive development and because abutters considered themselves beneficiaries of the aesthetic and recreational resources created as a byproduct of MDC management. Comments from abutters included:

> The MDC protects [existing] homes from development nearby.
>
> The MDC is neutral. They have authority to close ponds and not listen to [special interests]. They do their job.

Table 4
Suggested improvements for the reservoir (top 10 responses excluding the 277 respondents who said 'nothing')

1.	Litter control (more trash cans, distribute trash bags, more maintenance, clean grafitti)—81 respondents
2.	Better safety (more police/rangers, better enforcement)—72 respondents
3.	Allow canoes and/or electric boats—66 respondents
4.	Provide maps/brochures/information—53 respondents
5.	Install toilets—37 respondents
6.	Maintain/mark trails—35 respondents
7.	Stock more fish—32 respondents
8.	Provide more/better parking—28 respondents
9.	More signs—25 respondents
10.	Allow dogs—24 respondents

It's good that they are protecting the land.
I enjoy using the MDC land so that makes them a good neighbor in itself. They keep the trails clear, too.

According to MDC Land Acquisition Coordinator Jim French, the MDC is looked upon favorably as a land purchaser, so that the acquisition program now requires little outreach. Although in the early years of the program, French made 'cold calls' to individuals who were selling their land in the watershed and encountered frequent resistance from sellers wary of the MDC's intentions, now sellers generally approach the MDC as a popular land purchaser in the region (French, 1997). According to French, despite some high-profile controversies, most area residents have positive attitudes toward the land acquisition program, a finding confirmed by our survey of reservoir abutters.

Furthermore, when respondents to the abutter survey expressed problems with the MDC, these complaints centered on resentment of benign neglect from the agency, not on resentment of its interference in their lives and land uses. As such, the abutters, like the recreators, tended to press the MDC for *more*, not less, intervention and proactive land management:

Police Cohen Bill violations nearby, especially with politically powerful builders, not farmers. Developers get everything but farmers get screwed.
The MDC should prohibit all activity on MDC land. They should buy properties with annoying uses.
The MDC should have prevented development on the other side of the road—that was a major wetlands violation—why wasn't the MDC on the case?
Provide information to abutters telling them what they can do to take care of millfoil in the pond.... Clean up eutrophication in Unionville Pond. Put back trash cans where roads cross the Quinapoxet [River] because these are big fishing areas.
Maintain lakes and work with people on maintaining the lakes. Police the area better. Maintain the land better. Give as much attention to outlying areas as to the reservoir itself.

Notwithstanding the pro-MDC view that generally prevailed in the reservoir region, there were specific areas where MDC interests diverged from those of local residents, and these have been sites of conflict. But, even in these cases, respondents expressed sentiments that would not be predicted by the critical water resource conflict narrative. Residents appeared to believe that the MDC is not so much malicious and intrusive as it is naively misguided and misinformed. In these instances, residents and recreators expressed a desire to work with the MDC as a partner in land management.

During the survey period, the most stark example of such conflict revolved around proposed changes in access to the reservoir at the North Dike in Clinton, a ridge beginning at the west end of the dam and extending along the reservoir's shoreline for 3.2 km (2 miles). Prior to the creation of the 1996 Public Access Plan, the only

'no access' zone at the reservoir was the South Dike, a 3.2 km (2 mile) ridge that begins at the east end of the dam and houses the Cosgrove Intake through which water flows to Boston. The North Dike, by contrast, was open access, although no shoreline fishing was allowed in the area, in contrast to the rest of the reservoir. Abutting a dense residential area as well as the Clinton Middle School, and very close to the town center, the North Dike effectively serves as a town park for Clinton. On weekday mornings and evenings and all day on summer weekends, dozens of Clintonians of all ages can be found walking, jogging, or bicycling its length.

When the MDC proposed extending the no-access zone from the South Dike to the North Dike as well, Clintonians erupted in rage. An ad-hoc citizens' group distributed flyers at the North Dike to raise public awareness (Figs. 3 and 4), appealing to precisely the same populist imagery of the beleaguered 'little guy' that is embodied in the critical water resource conflict narrative. In response to the flyers and word-of-mouth publicity, over 200 Clintonians appeared at a September 1995 public hearing to denounce the North Dike revisions recommended in the draft version of the Public Access Plan.

It transpired at the meeting that some of the Clintonians' wrath was due to a misunderstanding, which in turn had been exploited by those seeking to protect access. The flyers distributed at the North Dike mis-stated the length of the fence (4 miles instead of two), called the public hearing a 'protest meeting', and, most

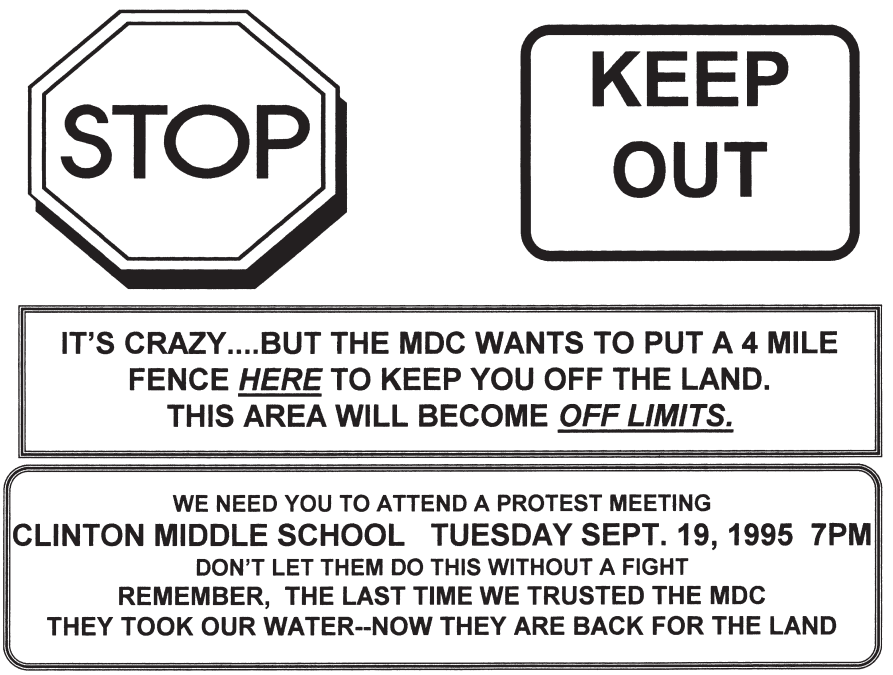

Fig. 3. Protest flyer. Distributed at the North Dike, Clinton by community activists in order to increase attendance at the September 1995 public hearing.

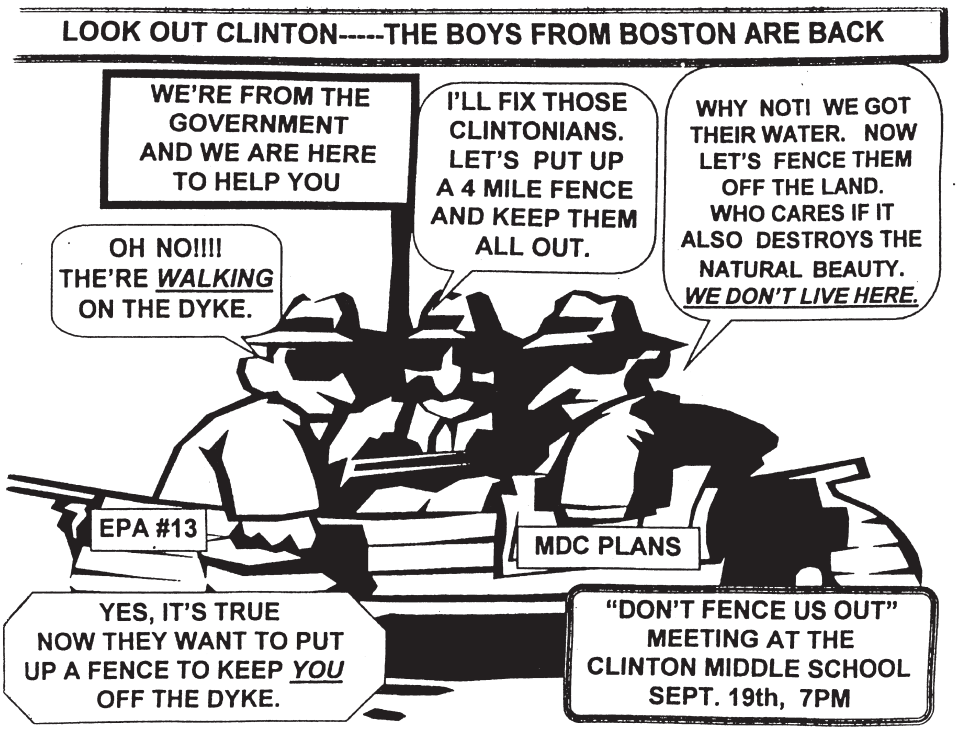

Fig. 4. Protest flyer. Distributed at the North Dike, Clinton by community activists in order to increase attendance at the September 1995 public hearing.

significantly, implied that the MDC was proposing that the entire North Dike be off limits. In fact, the MDC was proposing only that the portions of the North Dike *on-watershed* be declared 'no access'. Since the ridge of the dike marks the watershed boundary, access to most of the walking trail at the ridge of the dike that was so dear to Clinton was never threatened. Nonetheless, even when these points were clarified, Clintonians had three major problems with the MDC's plans. First, the MDC was proposing to construct a 1.2 m (4 ft) high fence on the reservoir-side of the ridge so as to prevent trespass, and Clintonians were concerned that this would obscure their view of the reservoir when walking along the dike. Second, the agency planned to fence off the area closest to the dam where the walking path is on-watershed. This area to be blocked off included the only path by which one could easily get to a hill above the spillway, and it was a Clinton tradition to gather on the hill during a severe storm and watch the water overflow the spillway, perhaps in celebration of nature subverting the resource-extraction system that had been imposed upon the town. An alternate path proposed by the MDC was rejected by Clintonians as too steep for the elderly. Third, the MDC was proposing that the North Dike (along with the rest of MDC land around the reservoir) be banned to bicycles. Clintonians responded that the North Dike was an ideal flat, soft, and carless

place for parents to teach town children to ride bicycles (Esslinger, 1995b; Field observations).

Eventually, a North Dike Task Force consisting of representatives from the MDC, MWRA, DEP, elected officials, and town leaders was formed to resolve the details. Initial meetings were tense. Clinton's representatives followed the advice of their neighbors not to trust the MDC (McNally, 1995b), and one of the MDC's representatives later described the first meeting as "like a Cold War... a standoff" (Zilligen, 1997). However, following a recognition that all were negotiating in good faith, a compromise was soon reached. The fence was to be replaced with 'No Trespassing' signs along part of the dike, while in other areas the fence was to be relocated to a point below the ridge of the dike, preventing water access by dogs and humans but not inhibiting the view of walkers along the ridge; a small on-watershed area close to the spillway that was a popular site for teen parties was to be completely fenced off; and the old level path to the spillway was to remain open. Additionally, Clinton and the MDC agreed to establish a 'Greenway Trust' organization that would work to preserve the dike's beauty and cleanliness (Esslinger, 1995a; Press Statement, 1995). In interviews conducted after the dispute, antagonists on both sides of the dispute had great praise for each other's professionalism and consensus-oriented demeanor (McNally, 1997; Zilligen, 1997). Despite the brief bitterness of the North Dike controversy, the MDC and Clinton now appear eager to cooperate in managing the reservoir.

Reflecting on the data gathered during the survey and in supplementary archival work and interviews, a paradox is apparent in the views of area residents and recreators. On the one hand, residents and recreators recognize the MDC as an agency that extracts resources, imposes social and economic costs, and alters the landscape, all for the benefit of what is perceived as a distant metropolis. On the other hand, while residents and recreators resent the MDC's intervention in their lives, generally there has been an absence of the overt social and spatial conflict predicted by the critical water resource conflict narrative. In fact, local residents want the MDC to be a *more* active land manager and to have *greater* presence in the community, and their overall opinion of the MDC is positive.

Explaining the paradox

In this section we attempt to interpret why the tension and conflicting interests underlying Boston's domination of the reservoir region have not erupted into the anti-metropolitan populism predicted by the critical water resource conflict narrative. Following from the analytical position outlined in the first section of this article, we propose that area residents possess a sense of place more complex than the solely *locational* perspective wherein Wachusett is subservient to Boston. We also propose that area residents' understanding of the environment–development relationship is such that, while they understand that Boston's actions are guided by an effort to foster metropolitan development, these transformations are recognized as not *necessarily* detrimental to the reservoir region. At the formal level of 'power politics',

area residents perceive the reservoir as an imposition thrust on them by Boston. However, residents do not restrict their political understanding to this formal level. They complement this formal politics with an 'everyday politics' wherein the reservoir is a space of value, providing tangible benefits through specific monetary and non-monetary assets, and providing intangible benefits through its focal location in area residents' lifeworlds. Exhibiting the anti-metropolitan suspicion predicted by the critical water resource conflict narrative, but not its fatalistic populism, area residents welcome opportunities to enlist the MDC as an ally in maintaining this valuable space.

Before developing this explanation, however, we must briefly consider two alternative explanations. Perhaps area residents fail to be hostile to the MDC simply because they are not aware that the reservoir is an artificial landform constructed and managed to serve others. This explanation can easily be rejected. Data from the survey leaves no question that area residents are aware that the reservoir was constructed as a component of the metropolitan Boston water-supply system rather than a natural lake or part of their own water supply. When survey respondents were given six possible answers to the question of what the primary purpose of the reservoir was, 94% correctly noted 'drinking water'. Of particular interest was a high number of respondents who—before interviewers had time to read through the possible answers—responded 'water for Boston'. Another question asked respondents if they believed that they received Wachusset water at their homes. Here again, a high number of non-consumers (80%) were aware that the reservoir was not their water source. By comparison, only 66% of those who received Wachusett water were aware that they were Wachusett consumers. Significantly, of the 42 respondents who received Wachusett water but thought that they did not, almost half (19) were from Clinton. Apparently, the perception that Wachusett water is 'water for Boston' is so ingrained that even a number of residents who live in the one central Massachusetts community that drinks the water are unaware that the reservoir—which abuts their downtown—is also their water supply. Central Massachusetts residents are aware that the reservoir is an artificial construct, established to serve metropolitan Boston's water resource needs. It seems evident, therefore, that lack of awareness cannot be the reason for the paradox of anti-MDC feelings coupled with a desire for more active MDC land management.

A second alternate explanation is that central Massachusetts residents, recognizing their powerlessness in relation to Boston, have adopted a stance of at least apparent quiescence. This explanation is somewhat more plausible. As Gaventa (1980) notes, quiescence due to a recognition of powerlessness should not be taken as a sign of consensus. The powerless may avoid attacking the 'enemy' directly, but they will mount struggles against the conditions imposed upon them. This 'internalization of powerlessness' thesis likely has some validity in explaining local residents' attitudes toward the MDC. Historical records of reactions to the original proposal to create the reservoir reveal that area residents were keenly aware (and begrudgingly accepting) of Boston's overwhelming power (Nesson, 1983). To some extent, this stance continues in the present. Residents mount active opposition to specific conditions imposed upon them, such as the Cohen Bill development restrictions, the

Title V septic system regulations, and the proposed North Dike fence, but they avoid questioning the presence of the MDC in central Massachusetts per se. However, while this explanation might account for local residents' general pattern of conflict avoidance, it does not explain why they actually welcome a *more active* MDC. To offer a more complete explanation, we turn to an analysis centered around the reservoir's value as a significant space in the everyday lives of area residents. In particular, we examine how area residents' perception of the reservoir (and the MDC's role as its manager) is conditioned by *resource instrumentalism* and *non-instrumental rationality*.

Resource instrumentalism

As Emel (1990) notes in her discussion of public water supply development in Massachusetts, resource instrumentalism characterizes the shift by which nature (including water) has come to be viewed as a private, exchangeable commodity to be used in a way that maximizes its economic productivity—"a commodity to be used for making other commodities" (Emel, 1990: 531). With this shift, water and other elements of nature have come to be seen as means to ends rather than ends in themselves. We suggest that this perspective has permeated the thinking of residents in the Wachusett region and that area residents temper their general antipathy toward the MDC with a calculation that the MDC has the potential to manage the reservoir in such a way that it will provide them with discrete benefits. Area residents recognize MDC management of the reservoir as a means toward a collection of ends that could benefit them as well as water consumers in distant Boston.

Evidence supporting this explanation can be seen in the statements of several abutters who supported the continuation of the MDC land acquisition program in areas near their property because the creation of a forested buffer between themselves and other developments would increase the value of their own homes. Additional evidence can be observed in Clinton, the one town that is both a water supplier and water consumer. There, town officials were eager to pursue a compromise with the MDC at the North Dike that would preserve water quality, because they did not want to have to bear the costs of building a filtration plant for the Clinton intake (Naughton, 1996; Zilligen, 1997).

A further reading of Emel suggests a more subtle diffusion of resource instrumentalism among area residents and recreators. As Emel notes, resource instrumentalism need not relate solely to benefits that generate *monetary* gain:

> The inclusion of consumptionist interests, e.g., wildlife protection, recreational uses, scientific study sites, or even aesthetic appreciation, within the web of rationally administered water resources systems is certainly an important change in the production-oriented focus of water law and policy... (Emel, 1990: 542).

Social psychologists studying motivational factors behind popular environmental sentiments similarly note a wide range of non-monetary benefits that individuals

instrumentally calculate will accrue to them as a by-product of environmental preservation (Liu et al., 1997).

MDC stewardship of the reservoir is partly viewed by area residents and recreators as a means of guaranteeing that the reservoir continues to provide them with the benefits of a beautiful/natural/scenic site (the top response when respondents were asked what they most liked about the reservoir) that provides a space for quiet and peaceful recreation (the second most popular response). The improvements requested by recreators (e.g. more litter control, more rangers, allow canoes, provide maps, mark trails) would help them maximize their enjoyment of these qualities. Although recreators and residents recognize that the primary purpose of the reservoir is provision of drinking water for Boston, they understand that the MDC has the resources and the will to manage the space in a manner that benefits all. Indeed, fostering the reservoir as a recreational resource would be entirely fitting within the utilitarian maxim of providing the greatest good to the greatest number—the 'multiple use' land management principle—enshrined within the resource instrumentalist perspective. Given this framework, the MDC is recognized for its 'expertise' in land management. Nonetheless, residents and recreators retain their own sense of and confidence in local knowledge; two-thirds of the respondents offered ideas for how the MDC could improve its management policies.

Non-instrumental rationality

Much of area residents' attitudes toward the MDC can be explained by their resource instrumentalist calculations, especially in the context of their parallel calculations that Boston's overwhelming power over them counsels a general attitude of quiescence. Nonetheless, area residents' relatively high regard for the MDC suggests that their valuation of the reservoir, and the legitimacy of the MDC as protector of the reservoir, is also derived from a second valuation system: non-instrumental rationality.

Non-instrumental valuation of a place occurs when one concludes that a place has a value in and of itself, beyond any discrete benefits it provides, and that it is therefore worth preserving. Non-instrumental rationality has been noted in several other instances as a driving force behind environmentally-oriented social movements, including at Quabbin Reservoir, the other major reservoir in the MDC/MWRA system. According to Dizard (1994), a substantial number of Quabbin area residents believe that Quabbin should be managed as a holistic space valued for its intrinsic nature rather than for any specific resources that it may provide to humans, even though these residents are aware that the reservoir has been manufactured by 'outsiders' to serve specific resource needs. Residents' support for holistic management is distinct from their identification of any discrete benefits that they may receive from conservationist measures. Rather, it is derived from particular non-instrumental social norms that value nature in its own right (see also Cary, 1993; Gutierrez Karp, 1996; Hopper and McCarl Nielsen, 1991).

At Wachusett, there is substantial evidence that area residents' non-instrumental valuation of the reservoir is even more profound than simple respect for the reservoir

as a special place of nature; residents also identify the reservoir as an integral component of their lifeworlds. Miller (1992), building upon Habermas' (1984/1987) theory of communicative action, proposes that as outside influences threaten individuals' lifeworlds, people are likely to mobilize to protect the symbols and arenas that had previously grounded their interactions. While such movements appear disadvantaged by their position outside growing economic forces that are 'colonizing' and destabilizing lifeworlds, they gain strength through their reaffirmation of elements that are beyond colonization. Additionally, because valuation of one's lifeworld is not tied to discrete benefits, community members have great flexibility in defining what is an actual threat and what is an externally generated management strategy that might complement what they identify as valuable. At Wachusett, residents likely calculate that if the scientific management principles advocated by the MDC are in accordance with community efforts to preserve the reservoir as a component of their lifeworlds, then the agency may be a worthy ally.

Residents of the Wachusett region appear to value the reservoir as *their* space, and this identification with the reservoir transcends any identifiable benefits that residents derive from the space. This appears especially so in the towns of Clinton and West Boylston, where the reservoir protrudes into inhabited parts of town and is close to town centers. Even though few are alive who remember the valley before its flooding, many town residents had parents and grandparents whose jobs or homelives were disrupted by the construction of the reservoir, and this memory has not been forgotten. During the survey period, a series of four public lectures on Wachusett Reservoir were held at the Clinton Historical Society. For each lecture, over 100 people paid a $4 admission charge to hear local historians give presentations on such topics as the valley before its flooding, its landmarks, and the social history of the dam's construction. Slides and anecdotes were met with frequent nods and clarifying comments from the audience, implying that the lectures were as much ritual public recitations of local history (centered around the dam and the reservoir) as they were educational evenings. Clintonians identify with the reservoir's history as *their* history, even though they recognize it is a history of expropriation. Similarly, many survey respondents, when asked when they first learned about the reservoir were at a loss for words. One did not *learn* about the reservoir if one were from one of the towns in the region; one simply went there as part of one's life, in many cases daily.

This perception of Wachusett as *local* space is also evident in respondents' reactions to an MDC proposal to install portable toilets at several locations around the reservoir. While the toilets would provide an obvious amenity for recreators, many respondents expressed reservations about this 'improvement' and 29% categorically opposed their installation. Some of the opposition was on aesthetic grounds, but the most frequent objections were based on concerns that toilets would attract non-local people and destroy the reservoir's 'local' character. Specifically, respondents feared that the toilets would become sites for crime, graffiti, and vandalism; that they would attract too many people; and that they would attract casual users who would not respect the reservoir as a 'natural' space. A few of these respondents elaborated with explicitly racist, anti-immigrant, or anti-urban comments. Toilets, they argued, would

attract the 'wrong people', who were not of local stock and therefore would not appreciate the reservoir as a community icon.[8]

Returning to the example of the North Dike, this controversy reveals that, in some instances at least, non-instrumentalist connection to place is stronger than instrumentalist calculation of discrete benefits. At the public hearing in Clinton, the MDC tried to defend itself by pointing out that Clinton was the most direct beneficiary of the proposed access restrictions because the Clinton water intake is actually on the North Dike. But this argument failed to convince ordinary Clintonians; arguments centered around water purity merely reminded them that the purpose of the MDC was to provide 'water for Boston'. As the flyers in Figs. 3 and 4 demonstrate, the conflict was scripted by Clintonians as one between Clinton's land rights and Boston's greed for water (Esslinger, 1995b; Field observations; Zilligen, 1997).

During the hearing and task force meetings, it soon became clear that if a common ground were to be found between Clinton and the MDC, it was not to be in the MDC as a provider of pure water (even for Clinton) but in all parties' shared interest in maintaining the reservoir as a 'special space' (McNally, 1997; Zilligen, 1997). The basis for this potential common ground was demonstrated by elderly Clintonians (some of whom had moved to nearby communities but had returned for the hearing) who noted that the reservoir was special because it connected them with their ancestors who had built the reservoir (Field observations; McNally, 1995b). Bill McNally, the leader of a group opposing the MDC's proposal, told the audience at the hearing, "This is not about water—this is about blood, this is about pride, this is about tradition" (McNally, 1995a); he later explained Clintonians' passion for preserving access to the reservoir: "We have a part here, like part of your body" (McNally, 1997). State Representative Harold Naughton declared at the hearing that the North Dike was 'sacred ground' to the people of Clinton: "The land around the Wachusett is a valuable entity to the people of Clinton. We are the best protectors of that land" (Esslinger, 1995b).

This non-instrumentalist perspective continued after the MDC and Clinton officials reached their North Dike compromise. While the fence's utility for protecting Clinton's own water supply carried significant weight with town officials who dreaded having to install a filtration system for the Clinton intake (Naughton, 1996; Zilligen, 1997), the compromise was promoted to Clinton residents not as one that would protect the town's water supply but rather as an agreement that would preserve a precious part of Clinton—the reservoir—which also happened to be metropolitan Boston's water supply (Esslinger, 1995a; McNally, 1997; Zilligen, 1997).

In West Boylston as well, the reservoir, its landforms, and its icons have been bestowed with symbolic importance in the everyday life of town residents. Community residents regularly patronize Bob's Hot Dog Truck, a reservoir institution parked 364 days a year at a strategic intersection by the reservoir in West Boylston. In one sense, Bob's provides discrete resources—both culinary and visual—to area

[8] This assertion echoes sentiments frequently expressed in nineteenth-century debates over the installation of public toilets in urban parks (Cranz, 1982: 10).

residents. But the value of these resources is far from exceptional and it cannot explain West Boylston residents' high rate of patronization; the hot dogs are perfectly ordinary and the view of the reservoir is hampered by a dumpster, power lines, and a causeway. Rather, it appears to us that Bob's is appreciated for its iconic value, as a symbol of both West Boylston and the reservoir.

In fact, the truck's proprietor, Bob O'Brien, is something of a town celebrity; besides sponsoring town little league teams he is renowned for his annual Christmas celebration, when he gathers the town's children at the hot dog truck, brings in Santa Claus, via helicopter, to distribute toys to the children, and then, together with Santa, makes home visits to the invalids of West Boylston (Rocheleau, 1996). Bob's symbolism as a link between the community of West Boylston and Wachusett Reservoir is bolstered by his use of local products, such as Wachusett® potato chips (manufactured in Fitchburg) and Polar® soda (manufactured in Worcester), as well as his location next to the Old Stone Church, an 1892 Baptist church purchased by the MDC when the reservoir was constructed and allowed to remain standing to commemorate the settlement that was submerged by the reservoir. Together, Bob's Hot Dog Truck and the Old Stone Church appear to be appreciated, not simply as resources providing discrete benefits to community residents, but rather as artifacts that, through ritual patronization and visits, affirm the identity of the reservoir as a part of West Boylston and Central Massachusetts.[9]

The reservoir and its associated icons are granted important symbolic value, buttressing the idea that the reservoir—although placed there by outsiders to serve outside interests—is an integral part of the towns. It is significant that in both Clinton and West Boylston the backdrop for the de rigeur post-wedding photo session (and sometimes the wedding itself) is the reservoir. In Clinton, photos are taken in a park just downstream of the dam, immediately adjacent to the MDC's engineering offices and the electric generating station powered by the reservoir's outflow. In West Boylston, post-wedding photographs are taken at the Old Stone Church.

In summary, this section has demonstrated how area residents and recreators utilize a complex valuation of place to move beyond the zero-sum oppositions of environment versus development and resource-supply zone versus resource-consumption zone that, according to the critical water resource conflict narrative, predicate populist reaction. Area residents understand that the 'nature' around them was created by 'outsiders' and that it continues to be managed to serve these outsiders' needs. They also recognize the power differential between themselves and the MDC. Yet they have come to value this 'nature' and the space that it occupies, both because the space provides discrete resources and benefits for area residents and because it serves as a focal point for residents' lifeworlds. Tempering their formal politics of populist opposition with a more refined politics of everyday life, local residents have come to value the reservoir, and they welcome the MDC as a senior partner in its protec-

[9] The sanitation risk caused by Bob's customers is a concern of the MDC (MDC, 1996: 52), but as a popular West Boylston institution he would be exceedingly difficult to move. Indeed, the MDC tolerates Bob's presence, allowing him to erect picnic tables and a dumpster in the traffic island adjacent to his truck.

tion. At the same time, area residents are aware that ultimately the MDC's guiding mandate is different from theirs, and they are prepared to assert their own interests when they feel threatened.

Populism, utopianism, and environment–development conflicts

> Look down there. If the reservoir weren't there, do you think there'd be farms? No, there'd be strip malls and a highway leading straight to Boston. This reservoir's saved this area by keeping Boston out.
>
> Elderly man interviewed on the North Dike, Clinton (quotation reconstructed from interviewer's memory)

The respondent quoted above likely realized the irony in his statement. Of course, in an obvious sense, the reservoir did not keep Boston out; it brought Boston in. But it also facilitated a coalition between residents of the region and some of the state's most powerful business people and politicians, all of whom were dedicated to keeping this area of central Massachusetts a unique place.[10] The man on the dike, like many of his neighbors, recognized that this pact—while perhaps made with a less-than-ideal partner—could be exploited to keep out even greater evils that might invade from the east.

This study, like the comments of the man on the dike, suggests that one adopt a middle ground between populism and utopianism when interpreting environment–development conflicts in rural/exurban areas. On the one hand, one should be wary of a populist analysis wherein the oppressed citizens of peripheral regions are (or should be) 'naturally' united against their metropolitan oppressors. As the case of Wachusett Reservoir demonstrates, their interests may coincide. In particular, residents of the periphery may ascribe their own meaning and value to manipulations of 'their' nature designed originally to serve the metropolitan populace, reclaiming this transformed nature as a component of their own *locale* and endowing it with their own *sense of place*. As the quotation demonstrates, a manipulation of nature designed to 'let Boston in' may also serve as a means for 'keeping Boston out' and protecting (and inventing) local social relations and cultural symbols.

On the other hand, this article should not be seen as predicting a long-term consensus built around ideals of 'sustainable development' where multiple uses of nature coincide to bring mutual benefits for all. While this has in many ways happened at Wachusett, area residents understand that they are being used and that their interests will be abandoned should they conflict with those of metropolitan Boston water

[10] Another element in this coalition, not discussed in this article but an important intermediary between the MDC and the watershed area, was the statewide environmental conservation/open-space preservation community, led by the Massachusetts Audubon Society and a local group with Audubon Society links, the Friends of Wachusett Watershed.

consumers. This realization has not stopped area residents from deriving their own benefits from the reservoir and even integrating it as an essential part of their lifeworlds, but they are aware that the reservoir was given to them so as to serve someone else, and that access to it might some day be taken away (or further limited) for a similar reason. Urbanization remains a conflictual process in which various interest groups exercise their power, and the residents of peripheral resource-provision zones are among those lacking power. Ever cognizant of the uneven relationship between themselves and the MDC, area residents have placed themselves on a middle ground from which they cherish the reservoir and respect the MDC as its steward, but from which they also remain poised to fight for their interests.

In conclusion, the critical water resource conflict narrative is partly correct. Real conflict exists between resource-providing and resource-consuming communities. But this conflict does not necessarily hinge on overt issues of intrusion and domination; more complex positions and rationales may come forward. Conflict can also be tempered and subsumed by cooperation with or cooptation of the changing resource and resource managers. These shifts in position occur as residents of the resource extraction zone reclaim, redefine, and revalue the place that constitutes their lifeworlds. While the reclamation of place will not abolish the dynamics of social power underlying geographically uneven resource extraction systems, it may present possibilities for consensual and mutually beneficial resource management initiatives.

Acknowledgements

Some of the data used in this article was collected as part of a study contracted by the Metropolitan District Commission's Division of Watershed Management (contract no. WM95-008-S1A) and is used here with permission. This article could not have been written without the cooperation of MDC staff, especially Regional Planner Jeanne Zilligen, and residents of central Massachusetts, especially community activist Bill McNally, and we are thankful for their assistance. We also thank Dan Bedford, Gavin Bridge, Karen Nichols, and two anonymous reviewers for their comments on drafts of this article, as well as all of the interviewers who contributed to this project. Despite these debts of gratitude, the opinions expressed herein are solely our own and should not be presumed to represent the views of the MDC or the various individuals who contributed insights and knowledge. Additionally, although one of the authors (Clark) is at the time of this article's final submission an employee of the US Environmental Protection Agency (EPA) in Chicago, this research was conducted prior to his employment there, his work with the EPA does not concern regulation of Boston's water supply, and the views expressed herein should not be inferred to be those of the EPA.

References

Agnew, J., 1987. Place and Politics: The Geographical Mediation of State and Society. Allen and Unwin, Boston.

Albert, R., 1987. Damming the Delaware: The Rise and Fall of Tocks Island Dam. Pennsylvania State University Press, University Park.
Allen, B., 1995. One man's case of Title V burdens (Letter to the Editor). The [West Boylston] Banner, 9 November, 4.
Anderson, T. (Ed.), 1983. Water Rights: Scarce Resource Allocation, Bureaucracy, and the Environment. Ballinger, Cambridge, MA.
Bebbington, A., 1996. Movements, modernizations, and markets: indigenous organizations and agrarian strategies in Ecuador. In: Peet, R., Watts, M. (Eds.), Liberation Ecologies: Environment, Development, Social Movements. Routledge, London, pp. 86–109.
Blake, N., 1956. Water for the Cities: A History of the Urban Water Supply Problem in the United States. Syracuse University Press, Syracuse.
Booth, P., 1996. MDC purchases protect water but shortchange towns. The [Holden] Landmark, 15 February, 23–24.
Camp, Dresser and McKee, Inc., 1994. Interim Assessment: Watershed Protection Plan Evaluation, Wachusett Reservoir Water Treatment Plan. Report prepared for Massachusetts Water Resources Authority, Boston.
Carr, K., Crammond, J., 1995. Water Law: Trends, Policies, and Practice. American Bar Association, Chicago.
Cary, J., 1993. The nature of symbolic beliefs and environmental behavior in a rural setting. Environment and Behavior 25, 555–576.
Ciriacy-Wantrup, S., 1967. Water economics: relations to law and policy. In: Ciriacy-Wantrup, S.V. (Ed.), Waters and Water Rights, Volume One. A. Smith, Indianapolis, pp. 397–430.
Cranz, G., 1982. The Politics of Park Design: A History of Urban Parks in America. Massachusetts Institute of Technology Press, Cambridge, MA.
Crush, J. (Ed.), 1995. Power of Development. Routledge, London.
Curran, K., 1996a. The great Wachusett landgrab: the state wants 71,000 acres protected; property owners want fair market value. The Boston Globe, 14 January, A89, A92.
Curran, K., 1996b. Landowners have doubts: the need for takings, methods are questioned. The Boston Globe, 14 January, A89, A92.
Detweiler, I., 1995a. Local homeowners caught in middle of Title V controversy. The [Holden] Landmark, 13 July, 11.
Detweiler, I., 1995b. Public outcry over new Title V regulations. The [Holden] Landmark, 24 August, 1, 18.
Detweiler, I., 1995c. Selectmen want 100% state funding for sewers. The [Holden] Landmark, 13 April, 8.
Detweiler, I., 1996. Mixed reaction to proposal to increase lot sizes: Title V and sewer capacity will limit development. The [Holden] Landmark, 11 July, 9.
Dineen, J., 1997. David Balfour's domain: Metropolitan District Commission talks about priorities, patronage and public parks. The Cambridge Tab, 24 June, 1, 10, 11.
Dizard, J., 1994. Going Wild: Hunting, Animal Rights, and the Contested Meaning of Nature. University of Massachusetts Press, Amherst.
Drucke, L., 1995. DOR meets with Boylston on MDC assessment. The [West Boylston] Banner, 3 August, 1.
Emel, J., 1990. Resource instrumentalism, privatization, and commodification. Urban Geography 11, 527–547.
Esslinger, J., 1995a. MDC scales back proposed North Dike fence. The [Clinton] Daily Item, 20 November, 1, 10.
Esslinger, J., 1995b. Residents don't want shoreline fenced off. The [Clinton] Daily Item, 20 September, 1–2.
Esslinger, J., 1996. Monumental day for Clinton. The [Clinton] Daily Item, 1 February, 1, 10.
Feitelson, E., 1998. The Implications of Changes in the Israeli Water Agenda for Palestinian–Israeli Water Negotiations. Paper presented at the annual meeting of the Association of American Geographers, Boston, 29 March.
FitzSimmons, M., 1989. The matter of nature. Antipode 21, 106–120.
FitzSimmons Kromer, K., 1992. MWRA plan moves ahead. The [Clinton] Daily Item, 9 July, 1, 10.

French, J., 1997. Interview, West Boylston, 10 June.
Gandy, M., 1997. The making of a regulatory crisis: restructuring New York City's water supply. Transactions of the Institute of British Geographers 22, 338–358.
Gaventa, J., 1980. Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley. University of Illinois Press, Urbana.
Goldfarb, W., 1988. Water Law, Second Edition. Lewis Publishers, Chelsea, MI.
Gottesman, J., 1992. Constantino and Chase call citizens to action. The [Clinton] Daily Item, 14 July, 1, 10.
Gottlieb, R., FitzSimmons, M., 1991. Thirst for Growth: Water Agencies as Hidden Government in California. University of Arizona Press, Tucson.
Gutierrez Karp, D., 1996. Values and their effect on pro-environmental behavior. Environment and Behavior 28, 111–133.
Habermas, J., 1984/1987. The Theory of Communicative Action, Volumes One and Two. Beacon Press, Boston.
Hanson, S., Pratt, G., 1995. Gender, Work, and Space. Routledge, London.
Hopper, J., McCarl Nielsen, J., 1991. Recycling as altruistic behavior: normative and behavioral strategies to expand participation in a community recycling program. Environment and Behavior 23, 195–220.
Hundley, N., 1992. The Great Thirst: Californians and Water, 1770s–1990s. University of California Press, Berkeley.
Ingram, H., 1990. Water Politics: Continuity and Change. University of New Mexico Press, Albuquerque.
Kitching, G., 1982. Development and Underdevelopment in Historical Perspective: Populism, Nationalism and Industrialization. Methuen, London.
Kneese, A., Brower, B., 1968. Managing Water Resources: Economics, Technology, Institutions. Johns Hopkins University Press/Resources for the Future, Baltimore.
Krashes, D., 1995. Legislature should re-write Title V (Letter to the Editor). The [Holden] Landmark, 20 July, 4.
Liu, J., Bonzon-Liu, B., Pierce-Guarino, M., 1997. Common fate between humans and animals? The dynamical systems theory of groups and environmental attitudes in the Florida Keys. Environment and Behavior 29, 87–122.
Local Assessors Unhappy With MDC Payment Schedule, 1996. The [Holden] Landmark, 15 February, 23–24.
MDC (Metropolitan District Commission), 1996. Wachusett Watershed Public Access Plan. Metropolitan District Commission, Boston.
MDC (Metropolitan District Commission), 1997. MDC Land Acquisition Plan, Wachusett, Quabbin, Ware River, and Sudbury Watersheds, 1997–2007. Metropolitan District Commission, Boston.
MDC/MWRA (Metropolitan District Commission/Massachusetts Water Resources Authority), 1991a. Watershed Protection Plan—Quabbin Reservoir and Ware River Watersheds. Metropolitan District Commission/Massachusetts Water Resources Authority, Boston.
MDC/MWRA (Metropolitan District Commission/Massachusetts Water Resources Authority), 1991b. Watershed Protection Plan — Wachusett Reservoir Watershed. Metropolitan District Commission/Massachusetts Water Resources Authority, Boston.
MDC/MWRA (Metropolitan District Commission/Massachusetts Water Resources Authority), 1992. Watershed Protection Plan for the MDC/MWRA Water Supply Sources: Executive Summary. Metropolitan District Commission/Massachusetts Water Resources Authority, Boston.
McNally, B., 1995a. Address to the MDC's public hearing on the proposed Wachusett Public Access Plan, Clinton Middle School, 19 September.
McNally, B., 1995b. Thanks to those who attended (Letter to the Editor). The [Clinton] Daily Item, 27 September, 6.
McNally, B., 1997. Interview, Clinton, 13 June.
Meyers, C., Tarlock, A., Corbridge, J., Getches, D. (Eds.), 1988. Water Resource Management: A Casebook in Law and Public Policy, Third Edition. The Foundation Press, Mineola, NY.
Miller, B., 1992. Collective action and rational choice: place, community, and the limits to individual self-interest. Economic Geography 68, 22–42.

Monahan, J., 1995. 'Us-vs.-Them' big threat to watershed: attitudes, obstacles studied. The [Worcester] Telegram and Gazette, 12 February, B1, B6.

Naughton, H., 1996. Discuss water service issue (Letter to the Editor). The [Clinton] Daily Item, 7 March, 6.

Nesson, F., 1983. Great Waters: A History of Boston's Water Supply. University Press of New England, Hanover.

Neumann, R., Schroeder, R. (Eds.), 1995. Manifest Ecological Destinies (special issue). Antipode 27.

Peet, R., 1985. The social origins of environmental determinism. Annals of the Association of American Geographers 75, 309–333.

Peet, R., Watts, M. (Eds.), 1996a. Liberation Ecologies: Environment, Development, Social Movements. Routledge, London.

Peet, R., Watts, M., 1996b. Liberation ecology: development, sustainability, and environment in an age of market triumphalism. In: Peet, R., Watts, M. (Eds.), Liberation Ecologies: Environment, Development, Social Movements. Routledge, London, pp. 1–45.

Press Statement, 1995. MDC and Clinton Resolution for Access to the North Dike. November.

Rangan, H., 1996. From Chipko to Uttaranchal: development, environment, and social protest in the Garhwal Himalayas, India. In: Peet, R., Watts, M. (Eds.), Liberation Ecologies: Environment, Development, Social Movements. Routledge, London, pp. 205–226.

Reisner, M., 1987. Cadillac Desert: The American West and its Disappearing Water. Penguin, New York.

Roberts, C., 1990. Conflict and Cooperation in Watershed Management: Case Study of Metropolitan Boston's Water Supplies. Unpublished Masters in City Planning thesis, Department of Urban Studies and Planning, Massachusetts Institute of Technology.

Rocheleau, L., 1996. Frankly, Bob Cares. The [West Boylston] Banner, 28 March, 1, 12.

Rocheleau, D., Ross, L., 1995. Trees as tools, trees as text: struggles over resources in Zambrana–Chacuey, Dominican Republic. Antipode 27, 407–428.

Sachs, W. (Ed.), 1992. The Development Dictionary: A Guide to Knowledge as Power. Zed, London.

Smith, N. 1990. Uneven Development: Nature, Capital, and the Production of Space, Second Edition. Basil Blackwell, Oxford.

Smith, N., O'Keefe, P., 1980. Geography, Marx and the concept of nature. Antipode 12, 30–39.

Steinberg, P., Clark, G., 1996. Wachusett Reservoir Recreation Survey: Report of Findings. Steinberg and Clark, Environmental Policy and Planning Consultants, Worcester.

Swyngedouw, E., 1997. Power, nature, and the city: the conquest of water and the political ecology of urbanization in Guayaquil, Ecuador: 1880–1990. Environment and Planning A 29, 311–332.

Walker, R., Williams, M., 1982. Water from power: water supply and regional growth in the Santa Clara Valley. Economic Geography 58, 95–119.

Watts, M., 1993. Development I: power, knowledge, discursive practice. Progress in Human Geography 17, 257–272.

Weidner, C., 1974. Water for a City: A History of New York City's Problem from the Beginning to the Delaware River System. Rutgers University Press, New Brunswick.

Wescoat, J., 1984. Integrated Water Development. University of Chicago Department of Geography, Research Paper No. 210. University of Chicago, Chicago.

White, G., 1969. Strategies of American Water Management. University of Michigan Press, Ann Arbor.

Wittfogel, K., 1957. Oriental Despotism: A Comparative Study of Total Power. Yale University Press, New Haven.

Worster, D., 1985. Rivers of Empire: Water, Aridity, and the Growth of the American West. Pantheon, New York.

Worster, D., 1994. Water as a tool of empire. In: Worster, D. (Ed.), An Unsettled Country: Changing Landscapes of the American West. University of New Mexico Press, Albuquerque, pp. 31–53.

Zilligen, J., 1997. Interviews, Boston, 12 June and 22 October.

Zimmerer, K., 1996. Discourses on soil loss in Bolivia: sustainability and the search for a socioenvironmental 'middle ground.' In: Peet, R., Watts, M. (Eds.), Liberation Ecologies: Environment, Development, Social Movements. Routledge, London, pp. 110–124.