

NEW DEAL VS. YANKEE INDEPENDENCE:

The Failure of Comprehensive Development on the Connecticut River, and its Long-Term Consequences

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ABSTRACT

In the 1930s, comprehensive development of the Connecticut River basin – coordinated dam-building and operations from tributaries to tidewater – was advanced by multiple people and agencies. However, they fought for twenty years over the specifics. President Franklin Roosevelt and his New Deal supporters and heirs envisioned a federal valley authority that could provide regional economic development, resource conservation, pollution abatement, and, most important, cheap, widely available public electric power. The New England business establishment touted Yankee independence, but most of all, wanted hydropower allotted to states and private power companies. Upriver rural and farming advocates, led by Vermont's George Aiken, fought for a different kind of Yankee independence, endeavoring to prevent almost all flooding of upriver valleys. The Army Corps of Engineers and new interstate institutions tried with difficulty to develop compromise plans they could carry out themselves. In the end, the only compromise possible was non-comprehensive development. There would be only thirteen federal dams in the Connecticut River basin, they would be single-purpose flood control dams, and they would be built only in the tributaries. Hydroelectric power development and the mainstem river would be left to private companies. Connecticut River management would be divided spatially, functionally and institutionally. Ironically, in recent years, this has allowed some flexibility in terms of providing natural flows for fish and ecosystems, at least from the tributaries and federal storage dams. This article builds from secondary and primary historical documentary sources, plus interviews.

Keywords: Connecticut River, river basin development, New Deal, New England history, flood control, dams

Introduction

For a person familiar with federal dams on major rivers in the American West or South, a visit to an Army Corps of Engineers dam in New England's largest river basin, the Connecticut, can be a startling experience (Figure 1). The dam seems like a giant ridge separating two deep empty spaces on either side. Instead of an extended reservoir so common at dams on rivers like

the Colorado, the Columbia, the Missouri, and the Tennessee, one is likely to find no reservoir at all, or only a low reservoir, filled to about two percent of its capacity. One looks down from the empty heights and on both sides sees only a small river far below. Nor is there the fanfare – the visitors center, the historical information, the celebratory propaganda – one finds often at federal dams in the West and the South, even at some other places in the Northeast. Simply

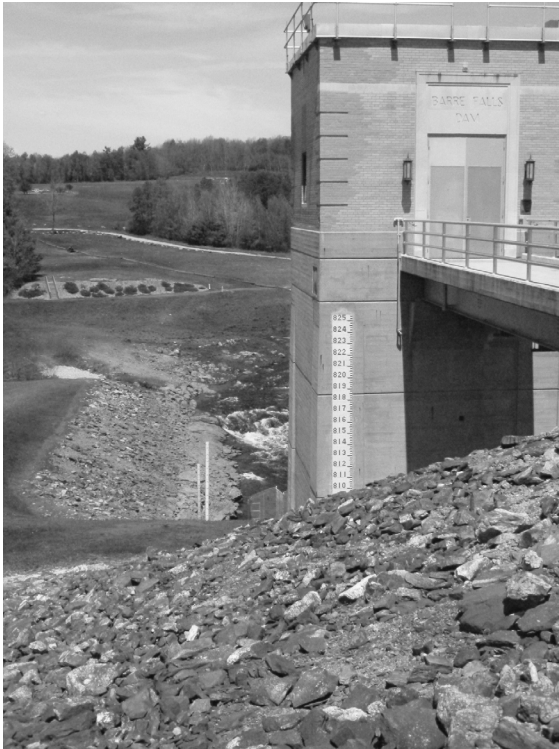


Figure 1. Barre Falls Dam, Hubbardston, MA, looking upstream. The gauge on the dam shows the dam can fill up to 825 feet; however, the water most of the time is far below (as the dam's website explains, it is a "drybed reservoir") and grass lines the sides of the empty reservoir. Much of the reservoir contains a Frisbee golf course. (See dam website at <http://www.nae.usace.army.mil/recreati/bfd/bfdhome.htm>.) Photograph by Alexandra Lacy, May 13, 2012.

finding one of the Connecticut River's federal dams can take some effort. None are on the mainstem. One must drive through the bucolic New England byways and forested hills to find a dam on a tributary (Figure 1).

For New Englanders, none of this may seem surprising. New England's history and identity, including the Connecticut Valley's, rests far more with the local and small-scale, mostly private, development of rivers for pre-industrial mills during the 17th and 18th centuries, and with the regional and medium-scale, also private, development of water-power dams during the launch of the American industrial revolution in the 19th century (e.g. Delaney 1983; Steinberg 1991; Judd 1997; Cumbler 2001). The old milldams, industrial dams, and the associated buildings and canals from these eras remain central landscapes of many New England villages, towns and cities. But large dams of the twentieth century, and major federal water agencies, seem to belong to far-away places mostly irrelevant to New England.

The more startling realization for New Englanders might be that during the mid-twentieth century, the federal government did in fact build a series of very large dams that have profoundly affected rivers throughout the region. In the Connecticut River basin, there are thirteen large

federal dams, all built and operated by the Army Corps of Engineers. Moreover, these thirteen dams are the legacy of a major push for large-scale comprehensive development on the Connecticut River that was quite similar to that in other river basins in the United States.

What was different in New England was that federal dam-building initiatives faced especially unified, vehement, and effective opposition. It was not that New Englanders were all opposed to large-scale river development; indeed, prominent groups developed their own plans. New England business and political leaders portrayed their resistance as a principled stand for Yankee independence and states' rights. But underneath, it was a fight over similar questions to those animating resistance in other regions: who would direct river development, where dams and reservoirs would be built, and who would control the most potentially profitable product of river development, hydroelectric power. The greater success of opposition in New England rested on three factors, which, if not unique to the region, were particularly prominent. First, privately owned electric companies and their investors and business allies were dominant players in the region's economic and political affairs. Second, the region had a relationship to the federal government during the New Deal that was distinct, and the opposite of the relationship of the South and the West: it saw itself as a region being *taken from* during the New Deal, for New England was an already industrialized region, indeed a region that was already starting to *de-industrialize*, whose taxes were now helping to fund investments in other regions to which its industries were moving. Third, the river valleys of the region had long been relatively densely settled, and in Vermont in particular, amenity tourism in those valleys was already playing an important economic and political role.

Yet New England's rivers continued their unpleasant habit of flooding every few years, which made even independent Yankees wish for some help. The result was a twenty-year back-and-forth fight over the fate of the Connecticut River, as well as the region's other major rivers.¹ What determined the Connecticut River's fate was that this fight resulted in stalemate. As a result of this stalemate, compromises carved up spaces and functions of the river, and set strict limits on what developments would take place. The lonely Corps dams in the Connecticut River basin and their usually empty reservoirs are among the results. They are also emblematic of broader consequences: Connecticut River development in the 20th century remained piecemeal, divided spatially, functionally and institutionally; and the role of the federal government on New England's greatest interstate river remained limited.

This article tells the story of the battle of the New Deal versus Yankee Independence over the Connecticut River, and outlines the results and legacies. The story was inspired by and draws deeply upon William Leuchtenburg's 1953 book *Flood Control Politics*. We have tremendous appreciation for the broad and inclusive thinking that supported New Deal river basin development ambitions on the Connecticut River, on which Leuchtenburg reported so well nearly sixty years ago, in what was to become the first among many seminal books in this historian's illustrious (and continuing!) career. But our story stretches beyond Leuchtenburg's volume to provide some of the broader historical context, widen the perspective from what were then Leuchtenburg's sometimes one-sided sympathies with New Deal aims and visions, fill out the story through to its political end in the late 1950s, and trace key legacies up to the present. In the first half of the paper, we describe the fights among four contending plans for comprehensive

development of the Connecticut River. We show that the only solution to the fights among the plans was *un*-comprehensive river development, in which federal dams would be single-purpose flood control dams, limited in number, and located only on tributaries. In the second half of the paper, we describe what happened as the plans for un-comprehensive river development marched forward in time and northward in location, facing fierce resistance in upper New England, especially Vermont. The conclusion describes some of the long-term hydrological, institutional, and management legacies of these battles for Connecticut River development. In the end, we will argue that New England's river development, and its non-development, during the 20th century were and are just as central to the region and its rivers as development in the 17th, 18th and 19th centuries.

Battle over the Connecticut River, Part I: Irreconcilable Plans for Comprehensive River Development (1927-38)

Between 1930 and 1937, there were four distinct and largely irreconcilable plans issued for comprehensive development of the Connecticut River. The two most politically potent conflicts over the plans were ownership of electric power and the potential flooding of upriver valleys and farmland. Underlying these disputes was a fundamental question over whether government should be in the business of spatially distributing wealth.

By “comprehensive,” different actors and agencies meant different things, but they all shared at least three ideas. There would be structures – dams mainly – built at sites throughout the basin (Figure 2); the construction program would be coordinated basin-wide; and once constructed, the operation of these dams and structures would be synchronized, so that upstream storage could reduce the risk of downstream flooding and provide flows when downriver dams needed to generate power.

Impetus for comprehensive development: “308 reports” and the 1927 flood

The impetuses for two of the plans came in 1927. First, Congress called upon the Army Corps of Engineers (Corps) to survey the country's river basins for possible improvements in navigation, water power, flood control and irrigation (White 1957). Among the nearly two hundred “308” reports – so named after the House document that had recommended the studies – that would eventually be published, seventeen would be surveys of New England's rivers (Parkman 1978).

Although the Connecticut River was large for New England, nationally other bigger rivers like the Tennessee and the Columbia took precedence (White 1957). In New England, in contrast, the Corps began with the smaller, easier rivers first (Parkman 1978). Between 1927, when the request was made for a Corps survey of the Connecticut River, and 1936, when the 308 report on the Connecticut River was finally released, there was plenty of time for other events and initiatives to spark heated contention over the river's future.

The second 1927 impetus for comprehensive development of the Connecticut River was a

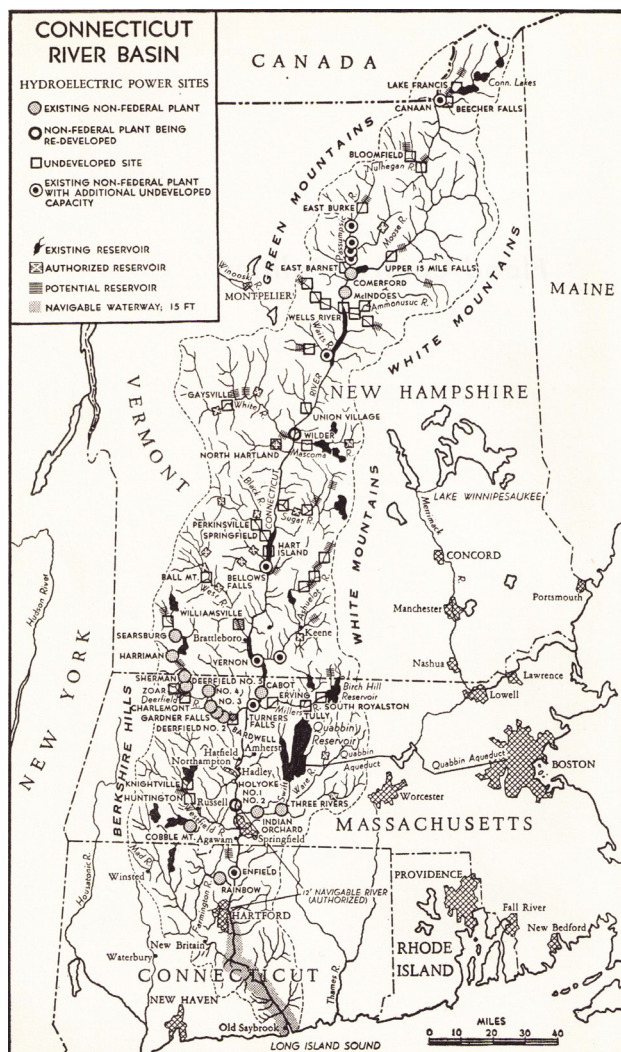


Figure 2. Connecticut River basin, planned developments, 1930s (Leuchtenburg 1953). No citation is given from the map but it appears to match reasonably well with data from the Corps' 308 plan, though with some sites missing on the map.

an excuse...to get their hands into Uncle Sam's strong box for the benefit of their own pockets" (Clifford and Clifford 2007, 120). For these Yankees, at least in the late 1920s, the commitment to independence was more important than the desire for river development. Vermonters

major flood. It was similar to that caused by Tropical Storm Irene in 2011, but even more devastating, particularly in Vermont (Figure 3). On a per capita basis, there was ten times as much property damage as in the Mississippi River flood that "changed America" earlier that same year (Patton 2005; Barry 1997). Though the Connecticut River basin had thousands of small and mid-size dams throughout the basin, they had done little to dampen the devastation. Only in the Deerfield River, where several large power dams had been built in the 1910s, had floodwaters been held back with "room to spare" (Clifford and Clifford 2007; Leuchtenburg 1953; Landry and Cruikshank 1996).

In the wake of the devastation, Congress approved legislation for unprecedented federal flood relief. Vermont received \$2,654,000, mainly for repair of roads and other infrastructure (Clifford and Clifford 2007). Congress also considered authorizing storage dams to prevent future floods, but here Vermonters balked. An editorial in the *Burlington Free Press* warned that Vermont's plight would "be seized by interested parties as



Figure 3. Flood at Springfield, VT. From: The Flood of 1927, Vermont History Explorer, Vermont Historical Society. <http://www.vermonthistory.org/explorer/component/content/article/30/279-floodof1927homepage.html>.

chose to wait for the Corps report, then still nine years off, before proceeding with discussions of federal river basin development, and showed no interest in hurrying the Corps' survey (Aiken 1938; Leuchtenburg 1953).

Plan 1: Barrows-Vermont Plan: Privately built and owned dams, maximum flood control and hydropower (1930)

Instead of seeking federal aid, Vermont's Public Service Board hired an engineering consultant from MIT to develop a flood control study. It got additional financial support from private utilities and the United States Geological Survey. The consultant, H.K. Barrows, in 1930 recommended 85 total dams in Vermont, many of these in the Connecticut Basin. In 1934 he recommended a similar number for New Hampshire (Barrows 1930; Leuchtenburg 1953; Clifford and Clifford 2007). What is immediately striking about Barrows' plans is the sheer number of dams and the enormity of the expected benefits he envisioned (Table 1, left side). Flood threats in the Connecticut basin would have been eliminated. Additionally, hydropower production in the basin would have surged, for storage dams would both generate power themselves, and also increase flows during low-flow seasons to improve power production downstream (Barrows 1930).

Barrows' approach was to have private power companies build storage dams. Production of hydropower would make flood control cost-effective, and could provide a net profit for the private companies. The Deerfield River dams were regarded as models. State legislation would

River	Barrows-Vermont Plan (1930, 1935)					Corps 308 Plan (1936)				
	Proposed dam site	Est. storage (below spillway, acre-ft)	Power at sites (river total, million KW-hrs/yr)	Add'l power, down-stream sites (million KW-hrs/yr)	Total power (million KW-hrs/yr)	Proposed dam site	Est. storage (total reservoir capacity, acre-ft)	Power at site (million KW-hrs/yr)	Add'l power, down-stream sites (million KW-hrs/yr)	Total power (million KW-hrs/yr)
UPPER CONNECTICUT BASIN (Vermont and New Hampshire)										
Headwater tributaries (Perry Stream, Indian Stream, Hicks Brook/Mohawk)	rivers not in plan					Happy Corner	19.5	0	3.4	3.4
						Perry Brook	37	0	5.5	5.5
						Kim Day	41	0	6.5	6.5
						Kidderville	10	0	3.6	3.6
Connecticut mainstem	Pittsburg	96.8	power	info not available		Pittsburg	51.0	34.3	10.0	44.3
						Indian Stream	30	19.7	4.1	23.8
Nulhegan (VT)	Yellow Bogs	89.8	10	14	24	river not in plan				
Connecticut mainstem	Upper 15 Mile Falls	114.0	power	info not available		Upper 15 Mile Falls	224.0	256.0	43.3	299.3
	Bog Dam	10.1				Bog Dam	12.0	0.0	3.8	3.8
Upper Ammonoosuc (NH)	Phillips Bog	17.5	power	info not available		Phillips Bog	20.3	0.0	6.5	6.5
	Soule Dam	12.2								0.0
Passumpsic (VT)	East Haven	12.7				East Haven	12.5	0.0	0.0	0.0
	Millers Run	23.4	31	80	111	Lyndonville	10.8	0.0	0.0	0.0
	Victory	38.0				Lyndon Ctr	31.7	0.0	6.1	6.1
						Victory	61.0	0.0	6.4	6.4
Ammonoosuc (NH)	Bethlehem Jct	24.2	power	info not available		Jefferson	26.0	0.0	10.3	10.3
						Bethlehem Jct	24.2	0.0	0.0	0.0
	Mile 6.6 Gale River	18.7				Alder Brook	14.0	0.0	0.0	0.0
Wells (VT)	Groton Pond	18.4	0	34	34	Gale River	10.4	0.0	3.4	3.4
Waits (VT)	South Corinth	46.0	8	25	33	Groton Pond	13.9	0.0	1.8	1.8
Ompompanoosuc (VT)	Union Village	17.3	24	5	29	South Branch	38.0	0.0	4.7	4.7
Connecticut mainstem		site not in plan				Union Village	22.0			0.0
	Gaysville	120.0				Piermont	49.0	85.6	0.0	85.6
White (VT)	Ayers Brook	21.4				Gaysville	129.8	51.3	20.0	71.3
	South Randolph	15.0				Ayers Brook	23.4	0.0	2.9	2.9
	South Tunbridge	16.8	64	84	148	Sharon	13.7	37.7	0.0	0.0
Mascoma (NH)	W. Canaan	41.4				South Tunbridge	25.7	0.0	0.0	0.0
Sugar (NH)	Claremont	49.0				river not in plan				
	Lower Sherburne	12.7				river not in plan				
Ottawaquechee (VT)	Bridgewater Cors	24.6	62	16	78	Bridgewater Corners	48.0	0.0	0.0	0.0
	North Hartland	22.1								
Black (VT)	Ludlow	27.6				Ludlow	19.8	0.0	0.0	0.0
	Mile 16.8	13.6	33	44	77	Amsden	22.3	0.0	2.5	2.5
	North Springfield	11.5								
Williams (VT)	Reedville	11.5	10	15	25	river not in plan				
Connecticut mainstem		site not in plan				Hart Island	17.3	114.8	0.0	114.8
	North Landgrove	15.4	102	66	168	North Landgrove	13.8	0.0	1.5	1.5
West (VT)	Londonderry	28.1								0.0
	Jamaica	24.4								0.0
	Newfane	94.5				Newfane	113.0	34.2	13.9	48.1
Ashuelot (NH)	Mile 4.9, Otter Brook	10.1				river not in plan				
	Bald Hill	18.2	power	info not available						
	Lower Stillwater	13.4								
	Russell Pk	15.2								
LOWER CONNECTICUT BASIN (Massachusetts and Connecticut)										
Millers	Moss Brook	12.7	power	info not available		river not in plan				
	West Tully	12.5								
	Tully	559.0								
	Priest	23.5								
	Sip Pond	11.3								
	Gardner	18.4								
Westfield		river not in plan				Knightville	32	19.3	0.6	19.9
TOTALS		1782.9	344	383	727		1217.1	652.9	160.8	774.5

Notes on data: Only dams with over 10,000 acre feet total storage are shown. Barrows sometimes used only storage below spillway and sometimes that and total storage; for consistency we have used storage below spillway. Barrows' power information is by river, not site. Barrows' New Hampshire-only study was unavailable.

Table 1. Large-storage dams (over 10,000 acre-feet) proposed by Barrows-Vermont Plan (Barrows 1930; Barrows 1935) and Corps 308 plan (Secretary of War 1936). Besides the number of large-storage dams that were proposed and their estimated hydropower production, what is significant here is that both plans emphasized the valuable ability of upstream storage dams to provide increased flows during low-flow seasons, thereby augmenting downstream power production.

enable the state of Vermont to take land and water rights for the projects. Public river regulating districts would regulate the dams, and have the power to issue bonds to finance construction (Barrows 1930; Leuchtenburg 1953; Clifford and Clifford 2007).

But this seemingly homegrown Yankee solution was a non-starter. Vermont's House Speaker sponsored a bill modeled on Barrows' plan in the 1931 state legislature. However, freshman legislator George Aiken, who sat on the legislative committee to which the bill was assigned, got the committee to report the bill adversely, and the legislature declined to pass the bill (Leuchtenburg 1953; Hand 2003; Webb 1974; Aiken 1938).

The quick demise of the Barrows plan reflected the multifaceted suspicion of outsiders that marked Vermonters' sense of independence, as well as the state's changing politics in the early Depression. A wide mistrust of privately owned electric companies had been growing for two decades, and was suddenly politically potent. In the 1910s and 1920s, private power companies had expanded in Vermont. As in many states, they had been largely owned by out-of-state holding companies. Managers and investors in Boston, New York, and Chicago effectively controlled Vermont's electric power development, and most of the power produced from Vermont – at that time almost entirely hydropower – was exported to Massachusetts and Connecticut. The state's Public Service Commission regulated the electric companies weakly if at all, for its members were often appointed from the electric companies themselves, by the Republican business establishment, which controlled the governorship (Webb 1974; Judd 1979).

Adding to the growing resentment of private electric companies was their refusal to address an alarming decline in rural Vermont. Vermont's rural areas had been losing population for decades, and farmers throughout the country faced declines in the 1920s as prices dropped after World War I. The coming of the Great Depression was like a final blow, especially for Vermont's dairy farmers. New England residents were drinking less milk. To make matters worse, the spreading technology of electric refrigeration allowed Midwestern dairy farmers to sell milk in New England, creating new competition. Vermont farmers demanded rural electrification, to help them compete with the Midwesterners. The private companies, however, declined to build expensive transmission infrastructure to remote rural areas when they could sell instead to the more lucrative markets in southern New England (Webb 1974).

The main opposition to the dominant Republican establishment had long been a set of progressive Republicans. In 1930, progressive Republican George Aiken was elected to the state legislature. Aiken was a nursery owner from Putney, Vermont. When he argued against the Barrows plan in his legislative committee in 1931, he warned it would give power companies undue control over the destiny of the state. His arguments resonated. After all, the Barrows plan would not only let the private power companies take the lead on developing the state's rivers, but it would have this process regulated by the same kind of state public utility commission that had already proved to be ineffective in regulating the power companies (Webb 1974; Judd 1979; Aiken 1938).

The Barrows plan provoked alarm in rural Vermont for another reason as well. Perhaps its most horrifying aspect was that it proposed to flood vast areas of prime valley land throughout the state. Farmers and their allies wanted instead to revitalize farming and promote Vermont valleys as tourist destinations. Tourism was already a growing industry, offering recovery in the

face of other economic decline. Fierce advocacy for farmers, farmlands, and the state's rural communities, and fierce attacks on outsiders' designs on Vermont's rivers, boosted George Aiken's political career, and doomed the Barrows plan (Webb 1974; Gregg 2010; Aiken 1938).

Plan 2: Connecticut River Valley Authority: Federal multiple-purpose river development and conservation, regional planning, and publicly owned power (1935)

Next came the outlines of a vision that was, if possible, even more ambitious – not in terms of greater transformations of the Connecticut valley's waters, but in terms of how these waters were to be linked to transformations of society, economy and environment. This plan came from the federal government, but not yet the Corps. In 1933, President Franklin Delano Roosevelt, familiarly known as FDR, became President. For FDR and his allies, federal dams were a means to a far broader social mission and political agenda. This was part of Roosevelt's New Deal, which aimed to promote economic recovery, social opportunity and resource conservation during the Great Depression (see e.g. Leuchtenburg 1963; Dick 1989; Reagan 1999; Phillips 2007).

The boldest New Deal river development visions were of integrated river valley authorities. In spring 1933, one of the first major pieces of legislation from the new Roosevelt administration was the creation of the Tennessee Valley Authority (TVA). This agency would carry out multiple-purpose river basin development including flood control, navigation, and production of hydropower, regional agricultural and industrial development, soil and forest conservation, and regional planning (*Tennessee Valley Authority Act* 1933; for a useful starting summary on the TVA see Miller and Reidinger 1998).

The TVA law included a "public preference" provision, that required that the TVA's hydropower be sold preferentially to "states, counties, municipalities, and cooperative organizations of citizens or farmers, not organized or doing business for profit, but primarily for the purpose of supplying electricity to its own citizens or members (*Tennessee Valley Authority Act* 1933 Section 10). For the New Dealers, public preference was a necessary criterion for any federally built dams. For the executives and investors of the private power companies, who wielded considerable influence in New England, it was anathema.²

Public preference was not new. Starting in 1906, federal hydropower from newly authorized reclamation projects had been sold preferentially and at low rates to municipalities, states and cooperative electric companies; this had been codified as general policy in the 1920 Federal Power Act (United States General Accounting Office 2001; Hirt 2012; but see Elkind 2011 on how and why an exception was made at Hoover Dam). What was new was that the question of electric power ownership had, by the early 1930s, become a central and hugely contested national political issue. Electricity had become a dominant source of lighting in American cities and was the fuel of choice for many industries. Yet high rates and limited transmission lines made electricity inaccessible not only to Vermont dairy farmers, but to many people in rural areas throughout the country, and it remained an expensive cost of production for industry. Criticism of private power companies rose across the country when it was revealed that speculative invest-

ments in electric power companies and pyramid-like consolidations had helped create the stock market bubbles of the 1920s and the crash of 1929, and when, in the late 1920s, a congressional inquiry exposed these companies' massive and distorting advertising campaigns (Dick 1989; Funigiello 1973; McCraw 1971).

Now, New Dealers – led by Roosevelt, Interior Secretary Harold Ickes, and Congressmen like Nebraska's George Norris (a progressive Republican like George Aiken, though nearing the end of his career as Aiken began his) – aimed to expand public preference into a general federal power policy. The one power source they could control for now was hydropower from federal dams. By making sure federal dams produced large volumes of hydropower, and that hydropower was sold with public preference, they aimed to provide cheap, widely available federal electricity to support fledgling municipal, cooperative and other publicly or consumer-owned power utilities, as well as industry. These local public and cooperative utilities would then sell cheap federal power to retail customers in urban and rural areas alike. To compete, privately owned electric companies would have to improve service out to rural areas and to lower rates – or risk being replaced entirely. Either way, electric power would become available to a broad public and to much-needed industrial development (Funigiello 1973; Dick 1989).

In January 1935, Connecticut Representative Citron introduced a Connecticut Valley Authority (CVA) bill. The CVA would not only build dams but also operate navigation locks, provide recreation, build transmission lines, reforest the hillslopes, and sell wholesale power. The federal government would control power sales. Ten percent of the power sales would go back to the states (Leuchtenburg 1953).

However, others attacked this proposal vehemently and hurried to advance alternatives. New England's private power companies came out against the bill (Leuchtenburg 1953). The Water Resources Committee of the New England Regional Planning Commission, an inter-state agency that was created as a regional arm of Roosevelt's Natural Resources Planning Board³, rejected the valley authority idea (NERPC Water Resources Committee 1935b, cited in Leuchtenburg 1953, 40). It rested its argument on New England's characteristic independence. Despite its own dependence on federal funding and leadership, the regional planning commission would argue the next year that "New England is congenitally averse to the imposition of Federal authority" (Howard 1936, quoted in Leuchtenburg, 42).

The New England Regional Planning Commission represented all six New England states and claimed to represent a unified and inclusive commitment to the New England region (New England Regional Planning Commission 1935a). However, its origins and its stance on power development revealed its difference from at least the progressive Republicans in Vermont. The commission's Water Resources Committee was chaired by none other than MIT's H. K. Barrows. Moreover, the inter-state planning commission had grown out of the private New England Council, a business-oriented group created in 1925 as a regional Chamber of Commerce. In contrast to Vermont farmers' and New Dealers' position on rural electrification, the New England Council's power committee had averred in 1930 that, "It is not economically sound that the rural user should be permanently served at a loss with consequent burden to other customers, nor does the rural customer desire such a subsidy" (New England Council 1930). Their priority, in other words, was in maintaining profit and serving the most valuable loads first, not

in providing rural electrification.

Understanding the New England Council's role behind the New England Regional Planning Commission sheds light on New England's supposedly congenital aversion to the imposition of federal authority. Here were the same business interests that were suspect to rural Vermonters, themselves fighting in the name of region-wide Yankee independence. Yankee independence in this case seems to have been at least partly a mask for private capital's aversion to public ownership.

But the New England Council's claims to be protecting regional interests cannot be dismissed entirely. The New England Council's self-defined primary function was, "To develop and maintain a sense of the importance of New England as an economic area in of the United States" (New England Council 1935, 6). In the 1930s, New England had been declining economically relative to the rest of the country for several decades. The textile and other industries were moving to the South, where labor and land costs were cheaper. The New England Council had a major publicity campaign, promoting New England as "a good place to live, work and play" (New England Council 1930, 5) (Figure 4). It also sponsored policies it saw as favorable to retaining and attracting New England business, including lowering taxation and restrictions on business. In this context, the New Deal's drive to regulate and restrict business, combined with



These four New England Council advertising cards appear in street cars throughout the six New England states, which carry five million riders daily, through the co-operation of the Eastern Advertising Company of Boston

Figure 4. New England Council advertising posters, in the Council's efforts to "develop and maintain a sense of the importance of New England as an economic area in of the United States." (New England Council 1930, 5)

its use of federal tax dollars to fund development in the South and West, seemed, as Leuchtenburg put it, “positively diabolical, in that they drained money out of New England to benefit the very regions that were already at a competitive advantage” (Leuchtenburg 1953, 15). Thus New England’s opposition to federal interference could also be seen as a historically specific, self-interested protection of New England’s initial advantages against a federal government eager to share some of the region’s declining, but still comparatively large, wealth.

In 1936, the TVA itself faced a threatening lawsuit, and Roosevelt declined to come out in support of other valley authorities. The CVA bill died in committee (Leuchtenburg 1952, 1953; on the legal battles over the TVA, see McCraw 1971). The proposal would return later, however, and its shadow lay over the entire fight over New England comprehensive river management (Leuchtenburg 1953).

Plan 3: Corps 308 Plan (1936): Federal-state-private collaboration to construct dams for flood control, navigation, and privately owned power

In February 1936, the third major vision was unveiled: the Corps 308 report for the Connecticut River was finally released (Secretary of War 1936). In contrast to Professor Barrows’ maximum-development proposal, the Corps was comparatively conservative, though still ambitious, envisioning thirty-three reservoirs (Table 1, right side). In contrast to the New Dealers’ valley authority idea, the dams would fulfill a narrower range of purposes: flood control, power production, and navigation in the lower river. Storage would be primarily for flood control, but made economically justifiable by production and sale of hydropower. There would be some “indirect sanitary benefits” (Secretary of War 1936, 5), but broader stream pollution should be addressed by municipalities, through sewage plants, while erosion, reforestation and economic development should be handled by other agencies with relevant expertise (Leuchtenburg 1953).

The Corps recommended that local communities and states would provide rights-of-way, assume damages, and pay half the constructions costs. In return, they would take over and operate the dams once they were completed. Communities and states could sell hydropower to anyone they liked. The Corps reasoned that communities and states would sell to existing electric power companies, and thus the projects’ cost-effectiveness would depend on meeting these companies’ needs. This was a federal plan, but in contrast to the New Dealers’ valley authority idea, it offered hydropower to state, local and private interests (Leuchtenburg 1953; Secretary of War 1936).

Ultimately, it was part of the Corps’ plan, together with a part of the fourth plan, the interstate compact plan, which would go forward, shaping the river’s future. But both would be severely reduced before their remnants could be cemented in physical and institutional form.

What was not clear in the Corps plan was what kind of coordination system would allocate and distribute the costs and benefits of Connecticut River dams. If not a valley authority, then what? Some Corps officials thought an interstate authority was needed, while others thought it would not be feasible (Secretary of War 1936).

Plan 4: Interstate Compact (1936-37): Federal-state-private collaboration to construct dams for flood control, navigation, and privately owned power

New Englanders who wanted river development faced the same question: what kind of institution should allocate and distribute the costs of Connecticut River flood control? In April 1936, the New England Regional Planning Commission voted to support an interstate compact for Connecticut River development as an alternative to a valley authority. Interstate compacts might be clumsy, but that was “the price that had to be paid for ‘the safe-guarding of local privileges from inroads of Federal interference’” (Howard 1936, quoted in Leuchtenburg 1953, 42).

Once again, the stance of the New England Regional Planning Commission can be seen as an outcome of its strong ties to the region’s business leaders. In this case the links to the New England Council are less immediately evident, but the role of the private power companies in advancing the idea of interstate compacts could hardly have been more central. The Chairman of the New England Joint Commission on Interstate Compacts for Flood Control was none other than Henry I. Harriman, founder and former president of the New England Power Association, a privately owned electric company that in the previous ten years had been able to acquire a large proportion of the electrical generation, transmission systems and markets in New England (Leuchtenburg 1953; Landry and Cruikshank 1996; Webb 1974; Secretary of War 1936). Vermont’s and New Hampshire’s representatives on the Joint Commissions on Interstate Compacts for Flood Control were also closely tied to private electric companies and interests (Leuchtenburg 1953).

In August 1935, Representative Citron set aside his CVA proposal and introduced a bill to give advance Congressional consent for interstate compacts. Under this bill, when the Army Corps of Engineers constructed flood control dams, states would be responsible for “local costs” – the costs of acquiring lands, easements, and rights of way – and also maintenance. They would enter into an interstate compact in order to allocate these local costs. Thus a downstream state that benefited from a reservoir in an upstream state, for example, might pay a larger share of the related “local costs.” Perhaps hoping to head off opposition in Congress or from the President, the bill did not clarify who would own the dams once built, or their hydropower, under these advance-approved interstate compacts (Leuchtenburg 1953).

If Mother Nature had not intervened, this bill probably would have gone nowhere. The FDR administration – outside the Army Corps of Engineers and the Secretary of War – hated the bill. It seemed to preempt the administration’s own plans for comprehensive river basin development, instead handing leadership in river development to the Army Corps of Engineers – an agency the administration viewed with considerable suspicion. It suggested a disturbingly codified allocation of costs between the federal government and the states. And it failed to designate who would own the dams that would be built, the lands that would be acquired, and the hydropower that would be produced. Quite rightly, this was seen as an effort to obstruct New Deal visions of using comprehensive river basin development for broad regional planning and development, and to undercut the ability of federal dams to advance publicly owned power (Leuchtenburg 1953).

However, Mother Nature did intervene. Only a few weeks after the Corps issued its Con-

necticut River 308 report, from March 12-18, 1936, another flood hit New England – and a huge swath of the American Northeast. Three successive storm fronts in a period of two weeks following a colder-than-average winter caused a torrent of rainfall, snowmelt and damaging ice flows. It was the worst flood in three centuries in the lower Connecticut River basin and devastated cities from Brattleboro, Vermont to Hartford, Connecticut. In many sites it remains by far the worst flood on record (Leuchtenburg 1953; National Weather Service Northeast River Forecast Center n.d.).

Less than two weeks after the flood, on March 25, the Senate Committee on Commerce began to debate the new flood control bill. Spurred by the horror of the March flood, Congress quickly passed the bill in June, the Omnibus Flood Control Act of 1936, and FDR reluctantly signed it (Leuchtenburg 1953).

Even with a federal bill to support interstate compacts, the Connecticut River states still had to find agreement and come up with their own specific compact, before they could ask for federal approval. Leuchtenburg suggests that only a renewed threat of a Connecticut Valley Authority was able to inspire interstate agreement. In early 1937, with the TVA lawsuit resolved favorably (McCraw 1971), Roosevelt and Congressional allies moved to authorize a whole set of “little TVAs,” one of which would be an Atlantic Seaboard Authority, and would include New England. A month later, the governors from Vermont, New Hampshire, Massachusetts and Connecticut ratified their alternative, an interstate flood control compact, on July 6, 1937 (Leuchtenburg 1952, 1953).

The compact provided for the creation of the Connecticut Valley Flood Control Commission, which would have three representatives from each of the four basin states. The proposal had only eleven listed dam sites, eight of which were to be chosen. Three would be in Vermont, three in New Hampshire, and two in Massachusetts. The states would cover local costs, Massachusetts paying fifty percent, Connecticut forty percent, and New Hampshire and Vermont five percent each. The title to the lands would be taken in the name of the states, then leased to the interstate flood control commission. Indirectly, the compact also promised continued private sector dominance in New England’s electric system. If there were any hydropower benefit to a dam, the state would receive the right to use it. Supporters acknowledged that this power would most likely be sold to private electric companies (Leuchtenburg 1953).

The governors hoped that the 1936 Flood Control Act meant their compact would win easy congressional approval. However, FDR and his Congressional allies took a firm stand against the New England states’ asserted powers. They insisted that any dams to be funded or built by the federal government would be owned by the federal government. The lands acquired to build the dams would be acquired by the federal government and would remain under federal ownership. Any electricity the dams produced would be federal power, sold preferentially to public utilities in order to support a federal “yardstick” against which to measure other utilities’ power rates. Congress, still dominated by New Deal Democrats, rejected the Connecticut River compact (Leuchtenburg 1953).

The demise of comprehensive development on the Connecticut River

By blocking the New England states' flood control compact, the Roosevelt administration and its supporters had prevented the states – and indirectly the private electric companies – from claiming the benefits of future federal dams on the Connecticut River. They thus closed off the state-led option for river basin development, and the private companies' bid to win control of federally produced hydropower on the Connecticut River.

The states and other New Deal opponents soon returned the favor, closing off the all-federal, publicly owned power, alternative. First, they killed the little TVAs bill. Not solely New Englanders, a broad national coalition that was growing increasingly critical of the New Deal overcame the initiative (Leuchtenburg 1952).⁴

Next came the death of multipurpose dams on the Connecticut River. The 1936 Flood Control Act had caused so much trouble that in early 1938, Congress resumed discussions, aiming to craft an alternative. A compromise 1938 Flood Control Act passed on June 14. It provided that federally built dams and reservoirs would be constructed entirely at federal cost, and would be owned and operated by the federal government. In the Connecticut basin, it authorized twenty reservoirs and seven local flood protection works. The reservoirs, however, would be strictly for flood control. Sites that were better for other purposes would not be selected for construction by the Corps (Parkman 1978, 177; Leuchtenburg 1953, 108).

As if to hammer home the futility of any further hopes for New Deal policy on the Connecticut, in September 1938 the river flooded again. The flood was caused when a hurricane followed two heavy rains. Much of the coast in southern New England – home to the region's population and economic centers – was even more devastated than the Connecticut Valley. Political challengers for the mid-term elections successfully blamed the flood on Roosevelt Democrats who had opposed the states' flood control compact. Every state in New England went Republican, and only one of the region's federal representatives who had supported Roosevelt held his seat (Leuchtenburg 1953). Now, an almost unified regional delegation in Congress could block any program of Connecticut River comprehensive river development that furthered the cause of publicly owned electric power. This sealed the stalemate.

The 1938 Flood Control Act spelled out the crucial compromise that would grow out of this stalemate, though the details would be the subject of ongoing fights for another twenty years. Twenty or fewer federal dams would be built in the Connecticut basin. Federal dams would be single-purpose flood control dams, with no hydropower, and would not be built with additional storage that would benefit downstream generation, nor would their operations coordinate closely with downstream dams. Federal dams would be built only in the tributaries. Privately owned power companies would retain all their existing ownerships of power generation sites, and almost total control of the mainstem river, as well as many tributaries like the Deerfield. The privately owned companies would have to provide any storage for themselves, without the benefit of reliable seasonal flows during the low-flow months from the large storage reservoirs the Corps would build in the tributaries. Thus the Connecticut River would be divided institutionally, functionally and spatially. While all this drastically reduced the potential economic benefits of federal dams in the Connecticut River basin, it circumvented the political impasse

over ownership of electric power that kept stopping the construction of any dams at all.

Battle over the Connecticut River, Part II: The fight over Vermont's valleys (1927-38)

Even the more politically palatable single-purpose river basin development would not come easily. As general river basin development plans began to give way to surveys and construction of specific dams, a new set of fights faced off not the New Deal versus New England Yankees, but the Corps and the downriver states versus northern-valley Yankees in the upriver states, especially Vermont. This section outlines this fight, emphasizing a few of its highlights and the resulting step-by-step construction of thirteen federal dams in the Connecticut River basin.

In fall 1938, the September flood and the looming November mid-term elections helped push through funding and authority for the first four flood control dams in the basin. Three were completed by 1942: Surry Mountain on the New Hampshire's Ashuelot River, and Knightville and Birch Hill on Massachusetts' Westfield and Millers Rivers. Though locals in these places were not happy to surrender their lands, the states agreed to the federal government's terms when federal officials threatened to spend allotted money on flood control in other regions instead (Leuchtenburg 1953).

A fourth dam was supposed to be completed equally speedily, at Union Village, Vermont, on the Ompompanoosuc River. But George Aiken, since 1937 Governor of Vermont, was no more happy about having the Army Department flood fertile Vermont valleys for the benefit of the southern New England states, than about having the private power companies do so. Aiken insisted that the state acquire the lands for the federal government, and that the Corps sign an agreement that the dam would be only for flood control. At first, the Corps and the Secretary of War signaled their agreement, and the district engineer even wrote and signed a draft document. However, as the precedent-setting implications became more clear, the War Secretary – and President Roosevelt, who was brought into the discussion – balked at the notion that the federal government would have to submit to individual states' demands, and backed out of the agreement. Aiken then accused them, with considerable justification, of betraying a promise. Newspapers and politicians throughout Vermont cried out against federal intrusion and usurpation of state and local autonomy. Soon the press and Republican politicians across the country took up the cause, and hailed Governor Aiken as a national hero (Leuchtenburg 1953; Webb 1974).

The Second World War forced a two-year hiatus in domestic Army construction, but in 1944, the Corps began planning and surveying Connecticut River dam sites again. Multiple-purpose dams were, for a time, back on the table. The Corps began to survey Vermont's West River valley, the source of some of the greatest volumes of potential flood flows in the Connecticut River. The West River valley was also, as it happened, George Aiken's boyhood home. Valley residents protested the prospect of flooding their valley, especially because the Corps' proposed flood-control-and-power dam would need to be higher than a flood-control-only dam, and would therefore drown more of the valley. When the Corps suggested that the best location would be just below the village of West Dummerston, protesters began to organize. *The Brattleboro Reformer* came to their aid, announcing protests and calling for action in other river

valleys as well. A group of valley residents calling themselves Freeman, Inc. organized to fight the dam. The state emergency board supported a defense fund to fight the dam. Writes Leuchtenburg, "The engineers, who continued their surveys in the West River Valley, were harassed by every means short of physical violence" (Leuchtenburg 1953, 162). The Corps surveyors were cited for trespassing, denied permits to buy explosives, and almost lost their access to preferred gas rations (Leuchtenburg 1953).

In 1944, Congress considered a new flood control bill that would appropriate \$30 million for dams in the Connecticut River. In one of the early hearings, the Corps presented the West Dummerston dam as the most important flood control structure in the entire basin. The engineers contended that the villages that would be flooded had only a few hundred residents, and the increased height from building valuable power generation would cause only slightly more village flooding (Leuchtenburg 1953).

George Aiken, now a US Senator, arrived at this hearing with a cohort of dam opponents. He urged the Corps to use a series of smaller projects in the West River's tributary streams. As the House and then Senate hearings proceeded, Aiken became increasingly vociferous. He opposed the entire Connecticut River appropriation, because ten of the twenty planned dams would be in Vermont, flooding portions of almost every valley in the eastern half of the state. The reservoirs would stink when they were drawn down in the summer, fish would die, the generators would lie idle because there was little water in the summer and the fall, and communities would be devastated. Moreover, Aiken argued, "[I]t would be far better and in the long run cheaper to spend money in removing people from the danger areas, rebuilding their homes on higher ground" (Leuchtenburg 1953, 179).

In his seminal book on Connecticut River "flood control politics," William Leuchtenburg mocks this argument of Aiken's. Leuchtenburg notes that the factories and houses of flood-prone downstream cities were located along the river for a reason: because the rivers were used for industrial purposes. Aiken, says Leuchtenburg, "knew perfectly well that the relocation of factories and houses in cities like Springfield, Hartford, and Chicopee would have completely disrupted the lives of these industrial centers, and could only have been achieved at a staggering cost." What Leuchtenburg did seem to not recognize in 1953, however, was the legitimate hydrological and moral questions Aiken was raising, or, more pragmatically, their resounding political power. Today's decision makers, if faced with floods on the scale of those in the 1920s and 1930s, would almost certainly still choose to build flood control dams in the Connecticut River basin, but there might be more than a few who would be sympathetic to the logic of moving people out of floodplains in recognition of the recurring – and even ecologically important – cycle of river floods.⁵ But more importantly for Aiken's supporters, building large flood control dams rested on a utilitarian logic in which upriver valleys with smaller populations and lower economic production should be sacrificed for the benefit of far-away larger cities. Needless to say, this did not sit well with Vermonters. Their version of Yankee independence meant the right to protect their homes, communities, scenic valleys, local economies, and self-direction against the reach of distant cities, governments, businesses, and industries.⁶ Especially given Vermont's experience of development and exploitation by those from southern New England, Aiken's perspective does not seem as "cavalier" as Leuchtenburg suggests (Leuchtenburg 1953,

179, 180; see Aiken 1938, especially Chapter X, for Vermont conceptions of independence in relation to federal river development).

Cavalier or not, it was rhetorically powerful and politically influential. The upriver protests in Vermont, together with Aiken's efforts in Washington DC, were so successful they began to threaten effective Connecticut River flood control entirely.

As these implications became clearer, some politicians in the downstream states of Massachusetts and Connecticut became more sympathetic to the principle of federal preemption over state law. Representative Clason, representing Connecticut River cities Northampton and Springfield, Massachusetts, broke ranks publicly with his upstream neighbors, warmly favoring \$20 million in funding to go toward Connecticut River flood control, including dams on the West River (Leuchtenburg 1953).

The 1944 Flood Control bill, passed a few days before Christmas, forged a compromise much like that in 1938, with more specifics. Any dam on the West River mainstem would be only for flood control. The Corps would have to consult with the Vermont governor before constructing dams at four other sites in the state. Additionally, the Corps would study Aiken's proposed system of smaller dams in the West River tributaries. If the smaller dams could provide at least 75% of the flood control of a Dummerston dam, and could be built for \$11 million or less, the Corps would adopt this approach (Leuchtenburg 1953; Parkman 1978).

In this way, the upriver-downriver fracture of the New England states also catalyzed eventual compromise. Massachusetts and Connecticut governors and legislators became key intermediaries, forging compromises between Vermont, the Corps and the Presidential administration. The same basic approach would be used repeatedly. It was always in response either to some large-scale federal proposal or effort, or else a major flood. Legislators or businessmen from lower-river states would cajole their upper-river counterparts to support interstate or citizen agreements, in order to head off broader and far-reaching federal intervention. Then New England state representatives would go as a unified regional delegation to Congress, the President, and the Corps and show they had a constructive alternative, to persuade these federal leaders and agencies either to support them, or else simply to desist.

Their first successful compromise was reflected in the Corps' developing comprehensive plan, released in 1947. In 1945, the Corps had found that the eight-tributary-dam option in the West River valley was too expensive, and proposed three medium-sized dams. West Valley residents and the *Brattleboro Reformer* readied their protests. At the same time, the Corps faced growing protests in New Hampshire, where residents near the Surry Dam had experienced de-populated communities, a bad odor, and a rise in mosquitoes. But that same year, there was also a new federal regional authorities bill introduced to Congress. This was threatening to influential people in downstream New England state as well as to those in upstream states – and also to the Corps. The governors of Massachusetts and Connecticut convened a meeting of five New England governors (all but Maine) with the regional division of the Corps of Engineers. The governors agreed to get out more “yes” voices in local hearings about prospective dams, and the Corps removed the dams that were most offensive to Vermont legislators from its plans, including, once again, most dams with power potential. Even Vermont, to signal its good-faith support, finally approved the Union Village Dam, and agreed to two dams in the West River at

West Townshend and Ball Mountain. All three would be for flood control only, without reservoirs (Leuchtenburg 1953).

Next, as Congress considered a national pollution control bill, state leaders from Connecticut and Rhode Island persuaded those from Massachusetts to join a New England Interstate Water Pollution Control Compact. It would set pollution standards for pollution in interstate waters, but its decision-making structure gave each state veto power, and delegated all enforcement to the states. This time the New Englanders beat Congress's clock. A year before it could complete a national law, Congress approved the New England compact (Leuchtenburg 1953).

In 1948-9 it was both federal action *and* a flood that spurred state coordination. While the Corps was constructing Tully and finally Union Village Dams in the late 1940s, Massachusetts Governor Tobin gathered together the four Connecticut River state governors, to resume discussions on a flood control compact. They proposed the same cost-sharing approach as in the 1937 interstate compact, but did not attempt to assert state ownership. They specified twelve dam sites, several of which differed from the Corps' plan. They released a draft compact on December 31, 1948 (Leuchtenburg 1953). Then, repeating a theme, hours after they released their draft compact, starting on New Year's Eve 1948 and continuing to January 2, Day 1949, the Connecticut River flooded yet again. In the wake of the flood, in January, 1949, the states quickly signed their new flood control compact. The compact was not approved by Congress that year; Congress remained dominated by Democrats, and President Truman strongly supported federal power. However, the work done in 1948-9 would bear fruit in a few years: in 1953 a new Republican President Eisenhower and a new Republican Congress would eagerly approve the Connecticut River Valley Flood Control Compact (Leuchtenburg 1953; Richardson 1973).

In 1949, the idea of valley authorities and public power suddenly re-emerged, advanced enthusiastically by the Assistant Secretary of Interior C. Gerard Davidson of the Truman administration. This time, the stark decline of New England's economy lent political support to the idea of a Connecticut River Valley Authority, especially the idea of federal electric power, for some blamed high power rates for the exodus of New England industry to the South (Leuchtenburg 1953; Webb 1974). However, the threat of a valley authority again lit a fire amongst New England's political and business leaders. They attacked the idea mercilessly, arguing it was the fault of unions and their demands for high wages that drove industry away, not high power costs (Leuchtenburg 1953; see for example New England Council Power Survey Committee 1948). But they also buttressed their case that no federal intervention was needed. Vermont and New York joined the pollution control compact in 1949, and New Hampshire joined in 1951 (Gere 1968). And in 1952, a group of citizens and business leaders formed the non-profit Connecticut River Watershed Council as an alternative to a Connecticut Valley Authority (Miner et al. 2003).

Even all this interstate action did not produce rapid dam construction, however. In 1953, twenty-six years after the 1927 flood prompted serious planning for comprehensive river development in the Connecticut River basin, there were still only five completed flood control dams in the basin and one under construction. It took another major flood to finally drive the completion of the rest. That came in August, 1955, following Hurricane Diane. "Along with property and life," writes Parkman (1978), in a history of the New England district of the Army

Corps of Engineers, “Diane swept away complacent attitudes toward flood control.” Politicians and business leaders from Connecticut, Massachusetts and Rhode Island began immediately to campaign for better flood control. In 1956, Congress instructed the Corps to expedite construction of the remaining New England flood control dams. The Corps proceeded apace, completing two Connecticut Basin dams in 1958 (Otter Brook, in New Hampshire and Barre Falls, in Massachusetts), one in 1960 (North Springfield, in Vermont), three in 1961 (Ball Mountain and Townshend Mountain, on Vermont’s West River, and North Hartland, also in Vermont), one in 1965 (Littleville, in Massachusetts) and one in 1969 (Colebrook, in Connecticut

Conclusion: The un-comprehensive development of the Connecticut River: Results and legacies

Comprehensive river development, led by an over-arching federal effort, seems today like an idea for other rivers besides the Connecticut. However, as Leuchtenburg’s fifty-nine-year-old book reminds us, this was a vision advanced and fought over very seriously on the Connecticut River for many years. Moreover, both the effort and its failures have left results and legacies that still shape the river and New England.

The most obvious physical results are thirteen Army Corps flood control dams that dot the basin (Table 2 and Figure 5). They sit on tributaries, often over hard-to-find and poorly marked roads. But in times of floods, they come into action, filling, holding back flood-waters. As drybed or almost drybed

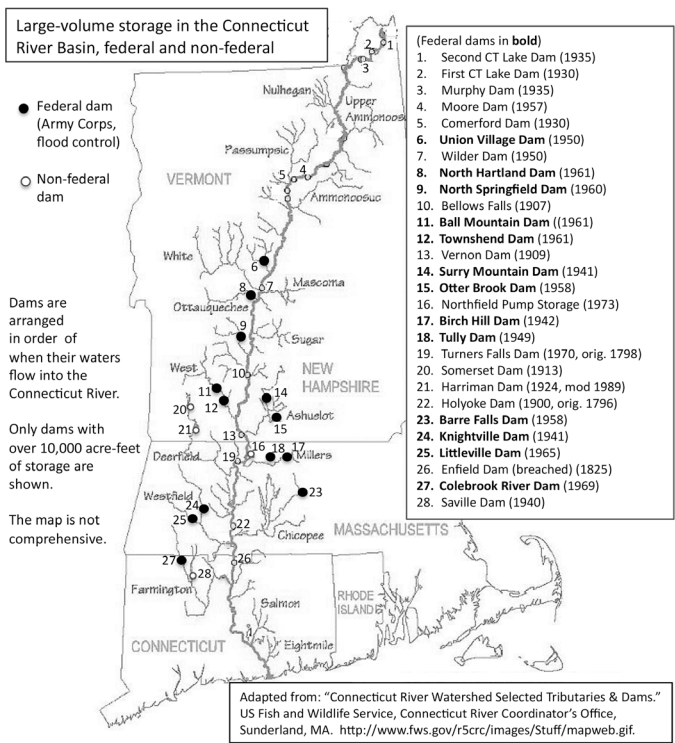


Figure 5. Large-volume storage in the Connecticut River basin today. Notice that federal dams are located only on tributaries.

River	# on map	Dam Name	Year Completed	Owner Type	Purposes	Storage (acre-ft)	Normal storage (acre-ft)
UPPER CONNECTICUT BASIN (Vermont and New Hampshire)							
Connecticut mainstem	1	Second Connecticut Lake	1935	Private	Hydroelectric	12,500	11,650
	2	First Connecticut Lake	1930	Private	Hydroelectric	114,000	91,000
	3	Murphy (Lake Francis)	1935	State	Recreation	132,000	99,500
	4	Moore (Upper 15 Mile Falls)	1957	Private	Hydroelectric, Recreation	223,722	223,722
	5	Comerford	1930	Private	Hydroelectric, Recreation	32,270	32,270
Ompompanoosuc (VT)	6	Union Village	1950	Federal	Flood Control	49,640	1
Connecticut mainstem	7	Wilder	1950	Private	Hydroelectric, Recreation	55,000	55,000
Ottawaquechee (VT)	8	North Hartland	1961	Federal	Flood Control, Recreation	94,600	2,350
Black	9	North Springfield	1960	Federal	Flood Control, Recreation	76,500	500
Connecticut mainstem	10	Bellows Falls	1907	Private	Hydroelectric, Recreation	30,000	30,000
West	11	Ball Mountain	1961	Federal	Flood Control	54,700	2,350
	12	Townshend	1961	Federal	Flood Control, Recreation	54,300	800
Connecticut mainstem	13	Vernon	1909	Private	Hydroelectric, Recreation	54,000	18,300
Ashuelot	14	Otter Brook	1958	Federal	Flood Control, Recreation	24,800	870
	15	Surry Mountain	1941	Federal	Flood Control, Recreation	44,000	1,320
LOWER CONNECTICUT BASIN (Massachusetts and Connecticut)							
Connecticut mainstem	16	Northfield Mt. pump storage	1973	Private	Hydroelectric, Recreation	21,500	17,050
Millers	17	Birch Hill	1942	Federal	Flood Control	76,000	1
	18	Tully	1949	Federal	Flood Control	35,800	1,500
Connecticut mainstem	19	Turners Falls	1970 (1798, 1869)	Private	Hydroelectric, Recreation	21,500	16,600
Deerfield	20	Somerset	1913	Private	Hydroelectric, Recreation	57,345	35,517
	21	Harriman	1924 (mod 1989)	Private	Hydroelectric, Recreation	116,075	103,375
Connecticut mainstem	22	Holyoke	1900 (1798, 1850)	Local Govt	Hydroelectric, Recreation	26,000	26,000
Chicopee	23	Barre Falls	1958	Federal	Flood Control	63,000	1
Westfield	24	Knightville	1941	Federal	Flood Control	64,000	1
	25	Littleville	1965	Federal	Flood Control, Water Supply	40,600	9,400
Connecticut mainstem	26	Enfield	1825	Private	Recreation	10,744	10,744
Farmington	27	Colebrook River	1969	Federal	Flood Control, Water Supply, Recreation	137,000	47,500
	28	Saville (Barkhamsted Res.)	1940	Local Govt	Water Supply	113,000	113,000

Table 2. Large-storage dams (over 10,000 acre-feet) in the Connecticut River basin today, as shown in Figure 5. Not only are there fewer dams than envisioned in the 1930s (see Table 1 and Figure 2), flood control and power production were separated institutionally and spatially, the Corps providing flood control in the tributaries with mostly drybed reservoirs, and the privately owned power companies generating power on the mainstem and some tributaries. Thus, the coordination between upstream storage and downstream power production envisioned by Barrows and the Corps was largely lost. Data from the National Inventory of Dams.

reservoirs (see Table 2 column, “Normal Storage”), virtually their full storage capacity is available at any time, so they provide as much flood control as possible for their size. All told, they control about twenty-five percent of the waters of the basin, the minimum the Corps said was necessary for flood control. They are able to make an enormous difference during flood events; for example, they reduced greatly the flooding during 2011’s Tropical Storm Irene, which hit Vermont much like the 1927 flood. Most now also provide some kind of recreation in a small lake or in their grassy reservoir (New England District well prepared for Hurricane Irene 2011; Upper Connecticut River Basin 2009; Lower Connecticut River Basin 2009; Curran 2011).

However, there are other physical results that are less apparent because they are results of what did *not* happen. Connecticut River hydropower was developed largely separately from flood control, because of the deep and intractable divide between federal government proponents of public power and New England business interests’ defense of private power, and because of the fierce protection of upriver communities from large reservoirs – in other words, because of the politics of the two faces of Yankee independence. Private companies developed most of the hydropower in the basin. Among the series of large hydropower dams on the mainstem river, all were privately owned until 2001, when the City of Holyoke, Massachusetts

purchased the Holyoke Dam (Moore 2002). The operations of the basin's dams remain largely uncoordinated across ownerships, though three non-federal generation stations were built at Corps Connecticut basin dams (U.S. Army Corps of Engineers 2009); private companies have managed to build some large storage for themselves, most notably at Moore Dam, at Upper Fifteen Mile Falls; and some hydropower operators pay a small headwaters storage fee to the Corps for the storage that is provided by flood control (Ragonese 2012).

Because of this un-comprehensive, uncoordinated development of the Connecticut River, hydropower production in New England remained lower than it might have been, and so the region has been that much more dependent on fossil fuel-burning and nuclear power plants, and electric imports from Canada.⁷

On the other hand, the lack of coordination between different dam owners and purposes has also meant that the river never became as fully regulated in terms of flows as did many other American rivers. This is not to say that the Connecticut River's flows have not been disrupted by dams. It is one of the most fragmented rivers in the country if not the world, because of its high density of dams, a legacy of the small and mid-size dams of earlier centuries. Flood peaks are significantly diminished thanks to the success of the Corps' flood control dams. Large power generation facilities like the Moore Reservoir, Wilder Dam, and the Northfield Mountain pump-storage facility cause major daily fluctuations; and a host of dams, including sometimes

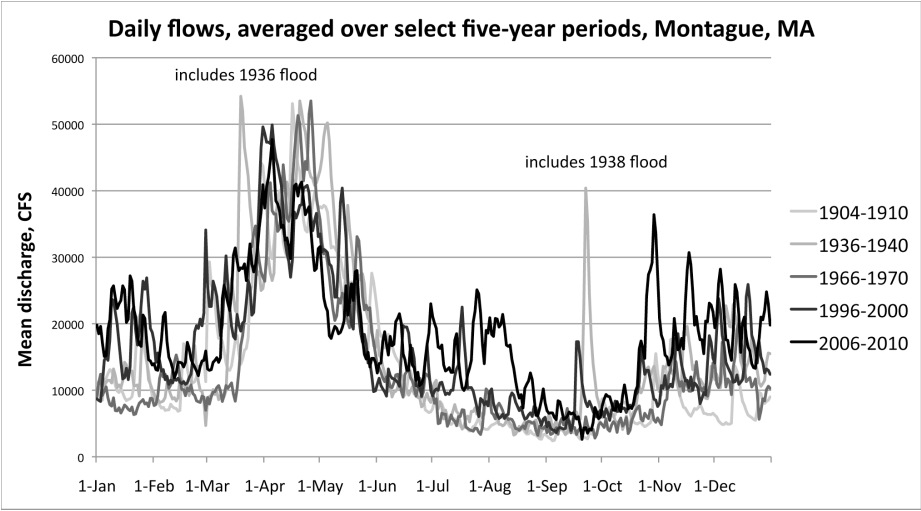


Figure 6. Daily river flows at Montague, MA, averaged over selected five-year periods. Darker lines are more recent five-year periods. The gauge is located below the Turners Falls Dam. Over 110 years, the over-all shape of the graph – the annual hydrograph – has not changed dramatically. However, daily and weekly-scale variations are strong, and seem to be increasing. These are heavily influenced by power operations from the Turners Falls dam, and from the Northfield pump-storage facility directly above the Turners Falls Dam. It is impressive to note that even after averaging with four other years' data, the 1936 and 1938 floods are evident. Data from USGS; graph prepared with help by Ryan O'Donnell.

the federal flood control dams, contribute to significant subdaily fluctuations (Zimmerman et al. 2008; 2009). What has not occurred, however, is for large storage dams in the upper river and high tributaries to store water seasonally to provide flows in low-water seasons for power generation below. Thus the river's annual hydrograph, and its seasonal flows, were not evened out across the year or reversed, in order to provide for peak power demand seasons, as they were in rivers like the Columbia (Bonneville Power Administration et al. 2001; Volkman 1997). The river's hydrography shows marked short-term fluctuations, but the shape of the year's flow variations has remained fairly consistent for the past 100 years (Figure 6). Another way to put this is that both flood control storage dams (outside of flood times and seasons) and many smaller power generation dams operate most of the time as run-of-the-river dams that let most water flow through.

This difference from rivers where development was comprehensive and more integrated has allowed the New England Corps of Engineers to work relatively easily with fish conservation efforts in recent years. The Corps simply made its generally run-of-the-river management into a more deliberate policy (Curran 2011). It did not have to justify the high costs of foregone power production, as is done in the Columbia River system (see e.g. Northwest Power and Conservation Council 2011). Now, the Corps is working closely with The Nature Conservancy to improve natural flows in the river (Curran 2011; Lutz and Hatfield 2009).

Besides the physical results and legacies from this era of battling over development of the Connecticut River, there are political and institutional legacies. Resentments linger in some parts of the northern basin, especially in Vermont, against the federal government, the power companies, and southern New Englanders. In the 1990s, this helped support an anti-government, anti-environmentalist politics that occasionally exploded in violence (Tripp 2006). The more regional, pro-business version of Yankee independence that fought off federal authorities and large-scale public power seems today to have little to say about the Connecticut River, but the New England Council has continued to thrive as an institution that promotes New England's interests in development and trade in its interactions with federal government policy (New England Council 2012).

In terms of river management, the basin has remained fragmented among multiple states, institutions, jurisdictions and purposes. No agency or institution came to coordinate Connecticut River management. Trying to craft basin-wide improvements is for this reason a major challenge. In a four-state basin, the most straightforward route to coordination might have been a strong centralized federal agency. There have been a number of basin-wide federal efforts in recent years. The federal government has added water quality standards, a Connecticut River Atlantic Salmon Commission, and a river-wide Conte National Wildlife Refuge. Still, these remain relatively piecemeal, limited, and often hamstrung by limited funding.⁸

Perhaps because of the fragmented and limited role of the federal government, however, the Connecticut River has had a fairly strong and lasting array of interstate and independent agencies. From the mid-1950s until 1981, there was a series of interstate rivers commissions, the most long-lived of which was the New England River Basins Commission (Foster 1984). Three interstate institutions that grew specifically out of the independent Yankees' efforts to head off the New Deal continue to function today. First, the Connecticut River Valley Flood Control

Vogel and Lacy: The New Deal Versus Yankee Independence

Commission has worked reasonably peaceably for over 50 years to balance out the cost arrangements for flood control between upriver and downriver states.⁹ Second, the pollution control compact that was originally inspired by the threat of federal pollution control, the New England Interstate Water Pollution Commission, continues to work to protect the river's environmental quality and has become a close partner with the Environmental Protection Agency – even if it remains subject to individual states' vetoes. Finally, the nonprofit Connecticut River Watershed Council – which some accused at the time of being a front organization for private utilities – became one of the country's first watershed councils, and today, alongside more recently involved organizations like The Nature Conservancy and the Trust for Public Land, is one of the leading voices for river-wide thinking and conservation.

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Notes

1. The most contentious fight of all was not over a river, but Maine's Passamaquoddy Bay, where the Corps proposed to build a major tidal power generating plant. See Parkmann (1978), Ch. 9.
2. In other places, unions also were beginning to play a role in opposing publicly owned power, as private power companies had unionized labor, while municipal and other public and cooperative utilities did not. As Armstrong and Nelles (1986) explain in their history of utility organization and regulation in Canada, ownership of utilities by the public sometimes undercut public support for workers' fights against utility managers (see also Elkind 2011).

3. This agency had four names in its ten-year existence: National Planning Board (1933-4), National Resources Board (1934-5), National Resources Committee (1935-9), and National Resources Planning Board (1939-43). (See Reagan 1991.) I have used the agency's final name to refer to the agency even in its early years, to ease confusion.
4. For a very illuminating narrative of the fight over the "little TVAs" bill see Leuchtenburg 1952. Leuchtenburg shows that the tensions within the FDR administration were insurmountable – and in doing so, he highlights fundamental challenges to any kind of redistribution of authority along geographical lines. Within the administration itself, both the Secretary of War and the Secretary of Agriculture bitterly opposed the creation of any little TVAs. The bill threatened to take away major portions of both departments' responsibilities, after all, and hand them over to new regional agencies which would be within the Department of Interior.
5. There were some, even in the 1940s, who advised that one of the best ways to avoid flood damage would be to move people out of floodplains (White 1986).
6. This echoes closely recent seminal work that shows that early fights to protect land and waters in the United States were often rooted in Northern New England and other remote, rural areas; and were not always driven by a pro-regulation, urban-driven recreation sensibility, but often the opposite (Judd 1997; Cumbler 2001; Brooks 2006). It also hints at an ironic legacy: these past environmental fights helped build toward an anti-government populism which often dominates these same regions' politics today, and commonly rejects government-led environmental protections (Tripp 2006; cf. Vogel 2008 on lessons from Brooks 2006). It also suggests these past environmental fights helped build toward an anti-government populism which often dominates these same regions' politics today, and commonly rejects government-led environmental protections (Tripp 2006 provides a lyrical reflection on some of these legacies in Northern New England and their sometimes counter-productive, even violent consequences; cf. also Vogel (2008) on lessons from Brooks' 2006 book about the Hells Canyon fight in Idaho).
7. Certainly, full power development of the Connecticut River basin never offered the power potential of rivers like the Columbia or the Tennessee, and would not have forestalled the need for other power sources in New England. The New England Council (1948) and the Corps' New England district's historian (Parkman 1978) argued that New England could not have produced much more hydropower than it did, because its already-settled valleys were not available for reservoirs in a way that valleys in other regions were. This seems to us to accept the Vermonters' hard-won limits on upper valley development as an inherent regional characteristic. It also ignores the sacrifices made of settled towns and residents in other river valleys in other regions (see e.g. McDonald and Muldowny 1981, Wilson 1973). Leuchtenburg (1953) suggests this argument was in many ways a political strategy not to re-open the possibility that the federal government might construct power facilities.

8. In summer 2012, for example, the US Fish and Wildlife Service announced the end of its effort to restock Atlantic salmon in the Connecticut River. Tropical Storm Irene had destroyed the main hatchery in White River Junction in 2011 (Daley 2012). Now there are concerns about how much funding will be forthcoming for recovery of other Connecticut River fish.
9. David Deen, Vermont Steward for the Connecticut River Watershed Council and state representative in Vermont, notes that the flood control compact is not entirely peaceable: while there have been “no shooting wars yet,” Massachusetts and Connecticut have often not appropriated sufficient funds from their general funds to cover the full cost of lost real estate in the upriver states, and this has caused ongoing complaint, at least from Vermont (Deen 2012).

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