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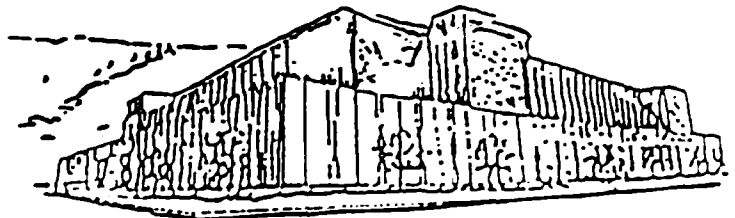
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# SO CLOSE TO FALLING

## THE REMOVAL OF HYDROELECTRIC DAMS ON THE ELWHA AND KENNEBEC RIVERS

by

Rachel D. Wray

B.A. Arizona State University, 1996

presented in partial fulfillment of the requirements

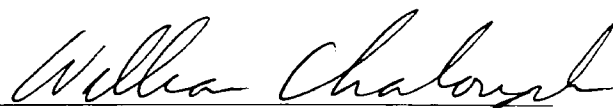
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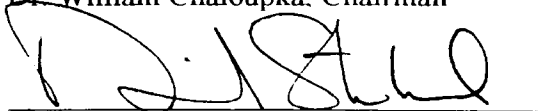
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1999

APPROVED BY:



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Dean, Graduate School

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RACHEL WRAY, M.S. 1999, ENVIRONMENTAL STUDIES

**ABSTRACT:** *So Close to Falling: The Removal of Hydroelectric Dams on the Elwha and Kennebec Rivers*

**COMMITTEE CHAIR:** Dr. William Chaloupka



In September 1997, two U.S. House of Representatives subcommittees held a joint hearing on proposals to remove Glen Canyon Dam, the long-time scourge of conservationists and rafters, from the Colorado River. It was only the sub-committee, so only a handful of Representatives attended, but the meeting garnered considerable national attention, from *High Country News* to the *New York Times*, and in what seemed like an immediate reaction, the unthinkable—decommissioning Glen Canyon!—was on everyone's lips.

Since then, dam deconstruction has been a fairly high-profile cause, but unfortunately, charismatic dams like Glen Canyon seem to grab every headline, with much less attention paid to projects more feasible and relatively less controversial. This paper discusses two such projects, the Elwha and Glines Canyon Dams on Washington's Elwha River and the Edwards Dam on the Kennebec River in Maine. These are three archaic hydroelectric dams that have outlived any usefulness. Their power generation is minute; their fish-killing capacity astonishing. Recreationally, they offer little to the surrounding communities, and would in fact off much more if their once-prolific anadromous fish runs were restored.

Dams, like most things, have a finite life-span, and breaching is frequently the most logical solution when considering the future of old, often crumbling structures that falsely purport to offer continued public good. The three dams considered in this paper have been ecological nightmares from the beginning, and as they leak and crumble and block salmon migration, removal is by far the most beneficial solution for all stakeholders: owners, conservationists, commercial and recreational anglers, and, of course, fish.

This paper focused on those stakeholders, illustrates the ecological problems with dams, and considers the processes that eventually led to the decisions to remove the dams. The impetus on each river was very different, but there are similarities that allow at least a small generalization to be made about beneficial conditions for the removal of a dam. Perhaps replication of these conditions by other proponents of dam removal can result in the removal of more egregious dams and the restoration of rivers.

## TABLE OF CONTENTS

Chapter One: Introduction to Dam Removal	Page 1
Chapter Two: Discussing Dams	Page 14
Chapter Three: The Elwha River	Page 30
Chapter Four: The Kennebec River	Page 50
Chapter Five: Lessons from the Elwha and the Kennebec	Page 67
Bibliography	Page 84

## **CHAPTER ONE**

*We are not now that strength which in old days moved earth and heaven.*

~ Alfred Lord Tennyson, "Ulysses"



To tell this story, I could start at the beginning. I could write about southwestern natives who, long before any white man claimed discovery of the Sonoran desert, dug irrigation channels to make sand yield grain; about the Homestead Act of 1862 and the plucky, sometimes-duped pioneers who ventured west, seeking paradise; about the birth of federal water development agencies in the early 1900s, and the re-birth of American prosperity just three decades later. I could weave a Homeric tale that spans two centuries, three continents, and at least ten states—a tale of confidence, success, graft, and greed, where pontifical characters march across the desert and leave an oasis in their wake, a legacy of rivers tamed.

But that story's been told before, many times. You know it well.

The age of dams, some historians call it, citing the 75,000-plus public dams built over the past 100 years on over a half million miles of river (DeLong; Barcott). The go-go years, others have said, offering statistics of their own. Too much time and history and growth to cram into two mere years of graduate study, I say, especially when others have chronicled it so eloquently and exhaustively well.

No, this story's different, smaller, and apt to be overwhelmed by such an epic framework. This story—about three little dams on two little rivers—is unfinished, being played out while I write. Maybe there'll be an end; maybe not. So no beginning, and possibly no ending ... what a fitting way to discuss nature and water and bureaucracy: fluid and timeless all. But, as T.S. Eliot wrote, "In my beginning is my end." No matter how seemingly ambiguous and chronologically odd this introduction may be, it sets at least an arbitrary stage for the rest of the events—that is, we start in 1997 with Glen Canyon Dam because it's from there a major national dialogue begins, because that's

where an end suddenly seems conceivable. Or, to look at it another way, this possible but as-yet incomplete denouement was predetermined over 150 years ago when Americans decided to systematically arrest the flow of all but one of the nation's major rivers.

The rest is just history.

\* \* \*

In the end, it's not a bang but a whimper. Almost five hundred pages into the veritable encyclopedia of reclamation history, *Cadillac Desert*, author Marc Reisner concludes, "What federal water development has amounted to is a uniquely productive, creative vandalism ... a vandalism of both our natural heritage and our economic future." This was in the early 1980s, when surely the future looked bleak, when Reisner could say, with considerably conviction, "Poll the rugged-individualist members of the Sacramento Rotary Club and a majority of them will say that their bankrupt government should by all means build them a \$2.5 billion Auburn Dam."

But even then, Reisner had his doubts. "I was probably right in 1979, when I started out," he wrote in 1990. Then, "it seemed that the West's, and Congress's, infatuation with water projects would never end. But by 1986, when [*Cadillac Desert*] was published ... the water development juggernaut that had rolled relentlessly forward since the Great Depression ground pretty much to a halt." In a revised 1992 epilogue to *Cadillac Desert*, he again amends his earlier, mournful predictions: "The dam-building machine didn't even coast down like a turbine going off-peak. It just suddenly fell apart."

Fell apart, indeed. The aforementioned Auburn Dam hasn't been built, and neither has controversial Animas La Plata or the Narrows or several other dubious projects he profiles in the book. Big dams in general, it seems, can't inspire the same free-wheeling excitement

as in the 30s or 50s or even 70s—throughout which an area equivalent to New Hampshire and Vermont combined was flooded—and so the rather fatalistic tone Reisner adopts in his tale of power and water in the American West turns out to be unnecessarily pessimistic, or at least slightly melodramatic.

In this new era, fittingly occurring on the cusp of a new millennium, more dams are notable for *not* being built or, increasingly, for being *un*-built. In magazines and newspapers, on bumper stickers and T-shirts, removing this dam or that is a cause célèbre, with citizens groups and irrigation councils debating the future of once-monolithic structures. Reisner calls it an “almost epochal shift in values”—values of nature, water, freedom, even money—and it’s challenging the views of a surprisingly large slice of Americans. Ideologies change, certainly, but this movement—if movement isn’t too strong a word—seems to have happened swiftly, surreptitiously, too low on the national radar to truly measure or monitor until one fine Tuesday in September, 1997, when the issue was catapulted onto the front pages of every major newspaper across the country as if it were on par with sliced bread.

On that day, the 24<sup>th</sup>, in the United States House of Representatives, two Natural Resources subcommittees—National Parks & Public Lands and Water & Power Resources—hosted a joint hearing on proposals to drain Lake Powell, the expansive reservoir behind Glen Canyon Dam. Now the House holds hearings practically every day, particularly on the subcommittee level, with little or no fanfare. But maybe because it was a Tuesday, or maybe because it was an off-year election with little else newsworthy happening, *this* hearing, ostensibly in response to the Sierra Club Board of Director’s unanimous vote, in November 1996, to support emptying the 250-square mile reservoir.

was instant op-ed fodder for the *New York Times*, the *Sacramento Bee*, and every Colorado Basin-state newspaper in between. In an immediate chain reaction, as if propelled by an unseen current, editorialists postured, columnists considered, and letters to the editor fell all across the spectrum: outrage, jubilation, and righteousness.

The hearing itself discussed emptying the reservoir—leaving the concrete structure in place as a symbol of folly and conceit—and returning the Colorado River to its historical flow (at least, of course, until it hits Hoover Dam and Lake Mead). The newspapers, with their deadlines and headlines, interpreted that as removing the dam, maybe even blowing it up. Emotions, though, and water were the issues, not fact-checking, a failing on the part of opponents and proponents alike. To wit: in a much-discussed *New York Times* essay, former Bureau of Reclamation Commissioner Daniel Beard heartily praised both the removal concept and the hearing, writing, “The Western lawmakers on the panel wanted to use the forum to embarrass those who support restoration of the canyon. It didn’t work out that way.” He continues, “[B]y holding the hearing in the first place, the panel gave legitimacy to the option of removing dams because it tacitly admitted that dams are not permanent fixtures on the landscape” (Beard 1997).

Actually, the Western lawmakers did a decent job of embarrassing restoration supporters. Representative Chris Cannon, from Utah, suggested, “I dare say this could be the silliest proposal discussed in the 105<sup>th</sup> Congress,” adding, “What existed there could never be restored.” The always-colorful J.D. Hayworth, from Arizona, skewered witnesses with half-disbelief, half-disgust, and an almost manic attention to detail. Representative after representative, with even a few guest Senators for good measure, summed the four-hour hearing as unthinkable, undoable, and unnecessary—one can

almost see the incredulity circling their heads, like in cartoons, with little asterisks and spirals and exclamation points. And who can blame them? Both subcommittees are chaired by and stacked with Westerners, especially Water and Power Resources, which at the time had seven representatives from California alone, Glen Canyon's greediest customer. These men and women knew their constituencies—everyone from irrigation farmers to boat-owning bass fishermen. And, just as importantly, they knew their landscapes: in the Colorado basin and beyond, on nearly all the land west of the 100<sup>th</sup> meridian, less than 20 inches of rain fall each year. The dam, then, and the 186-mile long reservoir behind it, is a wonderful, shimmering life insurance policy in the desert backed by 27 million acre-feet of river-water—a safeguard that, to Western legislators, definitely warrants a little taunting in the hearing room (DeLong 1998).

It wasn't all fun and games at the environmentalists' expenses, nor were contempt and sarcasm the only way in which Representatives could respond to the Sierra Club's and other supporters' facts and figures. Much of the hearing, however, came down not only to different scientific conclusions (and only time will separate the wheat from the chaff), but also to fundamentally different philosophies about everything from what defines a natural environment or a beautiful recreational experience to the concept of time, geologic or otherwise. This was obvious even from the hearing's opening statement from Chairman John Doolittle: "Standing on the shore of the lake or gliding quietly over the surface of the water, you have an opportunity to experience a unique natural resource." It hardly needs to be said that the Sierra Club wasn't exactly echoing that sentiment since its beliefs are founded in the exact reverse, Glen Canyon's supreme unnaturalness.

But at 60 stories high, as a security blanket in an otherwise insecure desert, Glen Canyon Dam is etched on the Congressional and national consciousness a little too firmly for one four-hour meeting to incite a mass-conversion. And despite the undisputed and ravaging effects the dam has had on the downstream ecosystem, its continued existence is almost guaranteed by legal entanglements: water-conscious beneficiaries of the 1922 Colorado River Compact, like Arizona and California, aren't going to let that water just flow away for the sake of beaches and fish down river without a considerable fight. Perhaps far more importantly, however, neither are the happy, oblivious hordes of people—2.5 million each year—who swim, boat, ski, and fish at this “unique natural resource” while pouring more than \$455 million into the local economy. Glen Canyon's a cash machine. So are plenty of other reservoirs—an astonishing 35 percent in this country are used primarily for recreation (DeLong 1998). Get to the point where water starts draining from Lake Powell and an easy 99 percent of Page, Arizona will take up arms.

With all these factors, all these obstacles, it's not unreasonable to wonder why the hearings were even held. Another Arizonan, Representative John Shadegg, answered this question best: “This issue is driven by ego [and] sentimentality.”

They do so often run together, ego and sentimentality. Throw in a little remorse and you have one David Brower, former executive director and current board member of the Sierra Club. Though he didn't even attend the hearing, his presence was undeniably palpable that day in Washington, for it is his influence inspiring the Sierra Club's seemingly impossible dream. In the 1950s and 60s, Brower marched across the country, fighting the Bureau of Reclamation with every ounce of grit and nerve he possessed. The dam-building machine marched against him. Sometimes he won. Sometimes the machine

won. They met again over a string of hydroelectric dams proposed for entire Colorado River-basin, including one in the Green River's Echo Canyon. Brower and the Sierra Club opposed the Echo Canyon dam, prepared to do anything to ensure it not become another notch in the Bureau of Reclamation's belt. When a compromise presented itself—the Bureau would exchange Echo Canyon for a little known canyon on the Colorado—Brower and other conservationists swept up the trade-off. Then they saw Glen Canyon. Finished in 1963, finally filled in 1980, Glen Canyon Dam has been the cross on David Brower's back for over three decades and probably would have plagued his conscience to his grave (DeLong 1998). Brower certainly suggests as much in his own writing, and his attitude is sadly echoed by other writers, environmentalists, and nature-lovers who protested the dam. As writer Greg Hanscom put it, "Glen Canyon was given up for dead" (Hanscom 1997).

Then, in 1995, a fledgling, single-issue environmental organization called the Glen Canyon Institute brought decommissioning the dam to the forefront—just like that, as an idea whose time has come. GCI founder Richard Ingebretsen and former Bureau of Reclamation scientist Dave Wegner soon tapped Brower to convince the Sierra Club board, which eagerly approved the proposal in 1996 vote and pushed for the 1997 hearing. The two groups have worked together every since, encouraging science-based decision-making, exhaustive research, and education about the dam and its effects, ecological or otherwise, with the penultimate goal of compiling a 30-month "Citizens Environmental Assessment" of the dam's presence and future through a graduated, public-directed approach. This is all well and good, but despite their efforts; despite their mettle to confront a reservoir filled with a devoted, splashing majority; despite a Congressional

study full of rapt Representatives and Senators, the hearing and subsequent debates have resulted in no measurable change in either public policy or federal ideology.

Here's what the hearing did do: it caught people's attention. Dam removal activists have toiled in relative obscurity for decades, but by discussing Glen Canyon, one of the biggest and most-loathed federal water projects, the idea of taking out a dam was suddenly the subject of mass discourse. Lots of people talked about it—activists glad to have a national forum, environmentalists anxious to do something more substantial than separate plastics or send off dues checks, libertarians interested in a free-market approach to irrigation. And people are still talking.

Within months of forming GCI, Richard Ingebretsen was inundated with publicity, requests for information, and calls offering assistance. He says, "I must have pushed the right button at the right time." And in a way, he's correct: it was the right time to discuss something previously unthinkable, a fact underscored by the participation of people from such different ideological perspectives. Even former Arizona Senator and presidential candidate Barry Goldwater had an opinion. In an unexpected show of support, Goldwater said in a nationally televised interview that he'd "be happier if we didn't have Lake [Powell]"; building the dam, he admitted, was a mistake (Yozwiak 1997). Goldwater's was only the most dramatic ideological change. Others watched and listened and changed, too, and for those people who couldn't quite agree with dam decommissioning, there still was the dialogue to consider and refute. Maybe, it's reasonable to hope, these people will tuck this big, radical idea away and, after still more discussion and thought, it won't seem quite so big or radical any longer.



Radical, however, is subjective, for dam decommissioning is hardly a novel idea. In 1962, Idaho's Washington Water Power Dam, located on the South Fork of the Clearwater River (a tributary to the Snake) was quietly removed after "totally eliminat[ing] anadromous fish migration" for 35 years (Shuman). Anadromous fish are species that spawn in fresh water but live most of their adult lives in saltwater; this part of the Clearwater River, then, was historically just one of thousands of places along the Snake-Columbia River systems where chinook and steelhead would come each year to lay their eggs. After 1927, however, when Washington Water Power Dam was completed, the entire South Fork was gone to the fish, just as so many other parts of the river were eventually blocked, too.

A drastic reduction in fish populations was the reason for removing the dam, and in the decades since, populations have slowly improved on the South Fork, although that improvement is hindered by the many other dams down the Snake. Still, the removal of Washington Dam sets an early precedent for dams' inevitable impermanence. More surprisingly, is it only one of hundreds of dams that have been "intentionally breached or removed in this country" because of fish migration, economic considerations, and, increasingly, a very real threat to human safety (Shuman 1995).

Floundering fish populations and associated ecological problems are by far the largest impetus in the current clamor for removing dams—especially the three dams subsequently discussed. But somewhat more dramatic are calls for deconstruction based on dam safety. A quarter of the dams in the United States are over 50 years old (Joseph 1998). Often not the most soundly built structures to begin with, many dams weather poorly and become veritable time bombs for downstream communities. Dams, like most things, have a finite

life-span, so breaching is frequently the most logical solution when considering the future of archaic, often crumbling structures that falsely purport to offer continued public good. As the thousands and thousands of dams on America's rivers continue to age, this point will become more important—people might not be able to empathize with anadromous fish preservation, but human preservation is another cause altogether.

The reason hundreds of dams can be removed without even minor press coverage is that these dams are comparatively tiny. Glen Canyon's over 700 feet high; China is building a dam over a mile long on the Yangtze River; the Grand Coulee has enough concrete to circumscribe a sidewalk around the earth—twice (Durning 1996). Just as charismatic species such as grizzly bears or wolves get the full-color magazine features in national magazines, the hour-long documentaries on the Discovery channel, so, too, do big dams and big rivers, not paltry projects like Fort Edward Dam or Columbia Falls Dam, removed, respectively, in 1973 and 1989 (Shuman 1995). But the proposal to drain Lake Powell, to annul Glen Canyon Dam's purpose, while exciting and even encouraging and certainly glamorous on the front pages of newspapers, is not to be executed any time soon. The proposal is too far-reaching, at least for now, and it may take away time, resources, and press coverage from projects less flashy but more feasible. As an inspirational talking point, it can't be beat. But for tangible results, it's important, both conceptually and literally, to start small.

If these smaller projects—Washington Water Power, Fort Edward, Columbia Falls—are our starting point, then perhaps it's better to move up the ladder incrementally to a medium-sized dam, to choose projects with supporters from various constituencies who might justify removal in different but still valid ways. Why start, after all, with a Goliath

when plenty of worthy contenders block rivers all across the country? Why not start with a relatively meager stretch of river in western Washington or southern Maine?

On the Elwha and Kennebec Rivers, in Washington and Maine, we find three dams less permanently tattooed on the nation's imagination. These are no Hoovers—nobody's driving the station wagon out from Topeka to take the tour. Instead, the three structures—Elwha and Glines Canyon on the Elwha River and the Edwards Dam on the Kennebec—are, in the simplest, even saddest, terms, geriatric hydroelectric dams that have outlived any meaningful use, like old work-horses. They've survived virtually everything once contemporary: the Glines Canyon Dam is 75 years old, the Elwha is 87 years old, and Edwards, a comparative grandfather at 163 years, is older than the other two combined. Their power generation is minute; their fish-killing capacity astonishing. Recreationally, they offer little to the surrounding community, and would in fact offer much more if their rivers' once-prolific salmon runs (as well as other fish) were restored. Anglers, no doubt, would come running.

As I'll outline in the next few chapters, these are decommissioning projects that make sense. Not because we should be afraid to fly close to the sun, but because it's better to restore rivers than reputations. Because we—that is, conservationists—can butt our heads against Glen Canyon Dam's concrete wall as emphatically as we want, but it won't convince boaters, anglers, swimmers, the Navajo Nation, the residents of Page, irrigation farmers, or commercial river-runners that draining Lake Powell is a sound idea. At least not yet.

In the beginning, people in and around Port Angeles, Washington, and Augusta, Maine, were skeptical, too. Removing the dams seemed ludicrous, and even if it were the

best solution for fish populations, there seemed to be so many downsides. loss of hydropower, possible loss of jobs, impaired water quality. But the many factions pulled together, gathered evidence both economic and ecological, and gave thoughtful attention to concepts as broad as wilderness and hydropower, salmon and pulp mills. And they concluded, based on hard science, hard numbers, and good old fashioned debate, that removing the dams was the best option.

These three dams will set a precedent and, for future decommissioning proposals, eventually offer sturdy evidence that dam removal restores riparian areas and improves fish populations. For now, however, they testify to the importance of developing rational, win-win decisions into which the concerns and causes of all sides are considered and factored—a development that must be replicated for other rivers and other dams. Until the hikers talk to the warm water anglers, and the warm water anglers to the cold water anglers, until a majority can agree that a desert river is better than a desert lake, Glen Canyon Dam will remain. In the meantime, we can learn from Elwha, Glines Canyon, and Edwards—and the many people who made the decisions to back removal—just how to go about dismantling not just dams, but our long-standing preoccupation with taming the natural world.

## CHAPTER TWO

*My soul has grown deep like the rivers.*

~ Langston Hughes, "The Negro Speaks of Rivers"

Montana Democrat Pat Williams, a candid Butte native—as if there were other kinds of Butte natives—served 18 years in the U.S. House of Representatives, and he’s got the deliciously quotable stories to prove it. Thoughts on fellow Representative Newt Gingrich, a member of Williams’s freshmen class of lawmakers? No problem. His decade-long attempt to pass wilderness bills? One in-the-trenches saga coming up. A good Reagan quip? Just one?

But ask him about changing ideology in American society—say, ideologies toward dam building, dam decommissioning—and he grows thoughtful, quiet. “Hyeh,” he grunts, interested. “Hyeh” again. He leans back dangerously far in his chair, wiggles his bolo tie, and smoothes back his hair. His eyebrows narrow as he fishes through his mental archives, and he answers carefully, noting first—diplomatically, of course—that few abstract thoughts and opinions can be traced back to one, independent source. Still, if he had to pick one event from which to consider all others, he’d choose the oft-cited whole earth perspective astronauts circling the earth presented in 1968. “[That] changed people’s view on issues like wilderness and environment,” he says, stopping short of the new-agey “spaceship earth” sound-bite. With our entire world reduced to a picture, a slip of slick paper, we now seemed slightly more vulnerable, more isolated and self-contained, leading to what Williams calls a “new American mood.”

Of course, our mood didn’t change overnight—that is, a strong, rational environmental ethic, despite Earth Day or Rachel Carson, did not immediately become the defining principle or priority of all Americans’ lives. Instead, and more importantly, it “got folks thinking.” It got them thinking about the land, about getting out on the land: hiking, river rafting, camping—activities undertaken by more and more people each year. It got

them thinking about conserving that land, and maintaining or improving our more-obviously delicate world. Accordingly, it suddenly didn't seem quite so superfluous or paranoid to pass the 1968 Wild & Scenic Rivers Act, or the National Environmental Policy Act a year later, the Endangered Species Act of 1973, or the many subsequent acts that mark a particularly prolific decade of substantial domestic legislation.

So it wasn't a rebirth, it was a *mood*. But Williams isn't content to leave my answer at that. Plenty more has happened since that fateful photograph was snapped to influence American thinking, including another mood, fiscal conservatism, *the* political doctrine of the 1980s, military buildup notwithstanding. The erection of Hoover Dam in the 1930s, with 5,000 workers earning \$5 per shift salaries—and three 8-hour shifts per day—doesn't compare to the appropriation of a billion inflated dollars today for a dam of questionable economic or even hydrologic benefit. Even the mighty Hoover took over 50 years to pay for itself, despite over one million people visiting each year, and millions more buying its electricity (Robbins 1999). What chance did heavily-subsidized water retention projects in 1980s-dollars have to pay for themselves within the same time frame? Within any time frame?

While a greater number of Americans lauded the beauty of this canyon or that river, economic rationales still spoke with undeniable authority, especially as the federal debt grew to an astonishing amount. With the number of zeroes in each year's deficit multiplying like cancer cells, Americans, for the first time, began saying no, or, at least, saying yes a little less enthusiastically, to new dams. Ironically, the man who planted the seed in their heads, Jimmy Carter, was booted out of office in part because his disastrous opposition to dams seemed anathema to American politics in general and Western politics

in particular. His ruinous 1977 “hit list,” which eliminated dozens of hydroelectric projects from the federal budget and made him Beltway enemy number one, seemed like a bold but stupid political move, regardless of the inherent worthlessness of the projects he opposed (Reisner 1993). Naturally, his hit list failed miserably with Congress—particularly with his own party—and the press skewered him over it, too. But it nonetheless inspired, in Williams’s words, “folks to focus” (Williams 1998). It was, Williams says, one of his “first memories of the West looking in the mirror and saying, ‘Whoa, we’re on the dole.’” He adds, “And [Westerners] resented Carter for holding that mirror up.”

So Carter was out, but his message resonated, perhaps below the surface, until being more fully developed over the last decade. But in fact, the ramifications could be felt even as early as 1980, three years after Carter left office, in Montana, where Williams was just beginning his second term in the House of Representatives. Up in the northwest corner of his home state, a run-of-the-river dam was proposed for the Kootenai River, which already had one hydroelectric dam, Libby, in operation. This new structure would have, Williams says, extracted far greater amounts of electricity from the water flow, but it also would “absolutely ruin the river.” Accordingly, environmental opposition was clear and swift, and a state-wide campaign was planned to fight construction.

Others, however, responded enthusiastically. “I was elected by labor-Democrats,” Williams reminds me—blue collar workers who would happily sweat for union-wages on an unnecessary but lucrative construction project. Workers who, in fact, had built the first Libby Dam, settling down in the verdant Yaak valley and never leaving. Work was scarce in the early-80s; a new dam would have been a perfect economic pick-me-up. Dam



supporters let Williams know their positions in no uncertain terms. The environmentalists, for the most part Democrats or Independents, were equally as vocal. Williams, however, had to make up his own mind, weigh water against jobs, knowing he would offend at least one section of his electorate. So he did the unthinkable, something to his knowledge never before done by a sitting member of Congress: he opposed a dam in his own district, and for a while it appeared he would leave Washington just like Carter, with his tail between his legs.

Without a tinge of irony, Williams says, “Libby Dam damn-near killed me politically.” His constituents—the ones “that brung him there,” he frequently quotes—were livid, and he went into the next election fearing the worst. Environmentalists, of course, were thrilled by his decision, but they weren’t a majority; they wouldn’t reelect him by themselves. He warms to his story, “But the oddest thing happened”: as the election neared, he found that conservatives were behind him, too—Reagan Republicans who thought the price of the proposed dam prohibitive, the benefits paltry. When the November polling date came around, environmentalists and conservatives alike voted for him. “I alienated plenty of pro-dam supporters,” he admits, but he broadened his political base by appealing to far-different sides of the ideological spectrum. Change was in the air.

But ideological change, like love or faith, cannot be easily quantified or measured or diagrammed, especially when it occurs in isolated pockets around the country. Making the matter more problematic, again like love or faith, ideological shifts might not even be permanent. They could be a fluke, a random statistical anomaly, a passing fancy. Is dam decommissioning a bona fide movement, or does it merely represent one end of a pendulum, opposite of prolific dam building? Hoping to get the answer from Williams.

who, for much of his adult life has tried to represent a frequently-shifting constituency. I prod the ex-Representative for his professional opinion on the permanency and efficacy of this appreciation for free-flowing rivers. Why, I wondered, were people suddenly considering removing former symbols of American ingenuity and greatness? Surely it couldn't merely be due to a greater appreciation for the natural world and fiscal conservatism. My voice hangs in the air, the incredulous "that's it?" tacitly implied—I wanted something more substantial tying these different values together—something that wouldn't just flake away in a couple years, one more cause down the drain. I didn't want him to confirm my worst fears: that the push for decommissioning was just fashion.

Williams doesn't disappoint. "Well, those two, yes, and ..." he pauses a beat. I lean forward. "Our science just got too good."

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Here was a venue in which quantification, measurement, and diagrams figured heavily and were trusted emphatically. Much of science is just theory, but it's theory less slippery than feelings about rivers, more universally accepted than economic opinions. Especially when scientists agree. Get a few scientists saying the same thing, people are bound to believe them, especially (but not necessarily) if it jibes with other, independently-formed beliefs. Of course, not all outcomes are ever identical, but in the case of dams' effects on rivers, even the most hardened Bureau of Reclamation or Army Corps of Engineers specialist eventually consented to certain fundamental truths.

First, and obviously, dams flood riparian areas. While it seems entirely unnecessary to say, riparian areas are not meant to be permanently flooded. Canyons are not meant to be giant bathtubs. Water has moved through pastures, canyons, and hillsides for a longer

period of time that most people can even grasp (even an era of, say, a million years, loses all meaning in its supreme profundity). Water has made these places what they are by virtue of this movement. To stop the water, to stop the flow, changes everything about the pasture, canyon, or hillside—from the species which have thrived in that environment to the sediment carried along in the current, and each change further influences still more changes, few of them good.

Reservoirs trap silt and sediment behind their walls, along with logs and leaves and other assorted bits and pieces of ecologically important debris that find their way into the river. Not only does this material and debris clog the reservoir, but it also abandons downstream beaches, banks, sandbars, and riverbeds, all of which erode or lower without new deposits of silt as reinforcement (The Economist 1997b). On the Colorado River, 90 percent of the sediment that once flowed through Glen and Grand Canyons is now trapped behind the dam wall; the Bureau of Reclamation estimates that Lake Powell will fill with sediment in 700 years, other researchers halve that number, but either way, it means a lot of material that once sustained the riverbanks and estuary is no longer available (Glen Canyon Institute). On the Mississippi River, tributaries like the Missouri or the Tennessee, intermittently dotted with hundreds of dams, no longer reinforce banks with sediment—too much is blocked behind the dams' walls. This loss of sediment can be immediately seen not only on the Mississippi itself, but also along the gulf coast, much of which is already below sea level thanks to erosion (Reisner 1998).

Just as dams stop sediment from flowing downriver, so, too, do they often block fish from migrating up- and downriver. In several extreme examples in both the Pacific Northwest and the Atlantic seaboard, the Army Corps of Engineers and state Fish &

Wildlife agencies transport migrating salmon via barges and trucks because the hydropower turbines turned the river into bouillabaisse. The National Park Service estimates that each year, hundreds of thousands of smolts are killed by turbine blades alone (1996). For those fish that make it through one dam, there is usually a string of other dams just waiting—an exhausting process when you’re a maturing young salmon, and your body physically *needs* salt water (Devine 1995). For salmon traveling upstream, dams are often fitted with fish ladders, but the efficacy of such ladders is inconstant, and many fish won’t use them.

Below the dams, fish and insects are also dependent on river gravel for spawning; the suspended and riverbed gravel helps camouflage and protect eggs and larvae while distributing oxygen throughout the water. Oxygen distribution is also hampered by increased temperatures: if in-stream currents are kept low by dam-operators, the shallower water warms more easily. Examples of this abound on the Elwha, where temperatures of up to 60 degrees Fahrenheit were recorded last August (Reisner 1998). This higher temperatures also resulted from water released from the much-warmer reservoir. Such conditions make the water perfect for *dermocystidium*, a parasite lethal to fish and previously detected on the Elwha (Joseph 1988), as well as endangering the lives of anadromous fish, which can die at temperatures above 70 degrees Fahrenheit (Barcott 1999).

When in-stream flows are released from the bottom, and cooler, part of the reservoir, the result is a cold, clear river—which also can kill downstream species that have carved out a niche in elevated temperatures. A warm, muddy river like the Colorado, for example, is now 20 degrees cooler than normal and “essentially dead” to organisms even as basic as

algae (Devine 1995). Altered habitats on Western rivers have contributed to the extinction of 20 native western fishes, and “100 more are considered threatened, endangered, or of special concern” (Western Water Policy Review Advisory Commission 1998). Naturally, other organisms that are part of the same food web are disturbed, too. On Montana’s Flathead River, systematically-regulated flows from the Hungry Horse Dam, perhaps due to recreation needs or irrigation draws from the reservoir, have helped to maintain constant temperatures—in this case, constancy is detrimental to species like stone flies, which will not emerge from the larvae stage until water is warmed to 65 degrees Fahrenheit, a natural temperature fluctuation that occurred when the river’s flow was low, and therefore more easily heated, but that is more difficult to reach, because the flow is evened out by dam management.

Other times, river flows are kept low when they should, in fact, be high. Often, water is held behind dams in reservoirs until “peak” periods of electricity use; at that time, the water is sent through the turbines, generating massive amounts of power while disrupting fish and eroding fragile banks. These peak periods could occur at certain times of the day, like on the Ocoee River in the Tennessee Valley, or at certain times of the year, like on the Snake River. For the latter example, filling up reservoirs during the spring, summer, and fall as an insurance for increased winter demand is great for electricity-buyers who want to warm their homes cheaply during January, but migrating fish depend on fast currents in the spring to help quickly flush them to saltwater. One hundred years ago, young salmon could travel from Idaho to the Pacific in as fast as a week; today, it can take up to three months if the flows leading up to each dam are slowed. Salmon smolts aren’t the only species that suffer: when reservoirs fluctuate noticeably, nesting birds around and aquatic

life in the reservoir are affected, especially if, like on the Ocoee, the entire riverbed is periodically emptied, literally removing those species' homes. Less seriously damaged are whitewater rafters and boaters, who are unable to enjoy the rivers' recreational benefits (Devine 1995). All this is not to say that rivers do not have natural high and low flows of their own—they do, of course—but tampering with these flows in decidedly unnatural ways seriously harms organisms that have evolved according to—and even depend upon—historically natural patterns and cycles.

Like a rap sheet for a wanted criminal, the complaints against dam<sup>s</sup> pile up: as sediment-hungry riparian zones are depleted, and the riverbed scoured and lowered, the overall elevation of a river can drop. Concurrently, water tables beneath and around the river drop, too, leaving those riverbank trees and plants, like cottonwoods, dependent on high groundwater levels literally high and dry. If the cottonwoods die, aquatic life dependent on the trees' nutrients die, and the river loses shade, and the banks erode further, and temperatures accordingly rise ... and a cycle of destruction repeats itself on down the river, leaving in its wake a dry, dusty, crumbling channel that bears only a slight resemblance to a river.

Other problems: irrigation and evaporation contribute to increased salinity levels of the water. Often, the in-stream flows include pesticides and other chemicals or contaminants like metals or dioxins, which are pinned behind reservoir walls, slowly concentrating as the sediment piles up. Swirling in the reservoir soup is decomposing plant life, something that doesn't immediately seem to be much of a problem. When left in one place to rot, however, the moldy material can release “as much greenhouse gases”—methane, carbon dioxide—“as a coal-powered plant with the same electricity generating capacity” (Wade

1996). And still more problems occur, such as water-borne diseases malaria and schistosomiasis, which thrive on or near reservoirs. Watch out for these deadly nuisances in developing countries, where most of today's big dams are being built (Gardener 1995, Wade 1996).

And these are just the biological or hydrological arguments; the social scientists weigh in, too, on the problems with dams. Reservoirs—either because of size or lucrative location—almost exclusively intersect communities that receive their livelihood from the river—a livelihood that has often been pursued for countless generations. For citizens of the planned dam sites, resettlement is not a choice but an obligation, and in addition to the inherent geographical changes are the more enduring, and possibly more psychologically harmful, cultural and social adjustments, for which monetary compensation or water rights cannot atone (The Economist 1997b). Worldwide, it's estimated that 30 to 60 million people have been relocated by large dams—a fairly wide margin, yes, but disturbing enough even at its low end (Robbins 1999). This range does not include the two million people now in the process of relocating due to China's colossal Three Gorges Dam on the Yangtze River. Currently under construction, Three Gorges will also inundate thousands of archeological sites (Robbins 1999).

All of this is not to say that dams don't have their purpose. Indeed, hydroelectricity is a significant source of power in this country, and a clean one at that, a fact easily disregarded in times, like now, of record-low oil prices. But when oil prices jump, as they did in the 1970s (while a more environmentally-conscious ethic emerged), hydropower's renewable energy make it an attractive option (Cliffe 1986). There is a remarkable difference, however, between powerhouses like Grand Coulee or Hoover Dams and a

rickety, ramshackle affair barely pumping out 10 kilowatts. But even if there were no difference, even if hydroelectricity were deemed good on any level, in any denomination, it still wouldn't justify such severe ecological damage. Admittedly, there are cases in which dams have had positive outcomes, like the well-documented effects of Pacific Northwest dams on World War II and America's ability to build bombers with cheap electricity and aluminum. Even Lake Powell has a silver lining: over 275 bird species now visit the area, and the reservoir hosts several pairs of bald eagles and the largest population of peregrine falcons, an endangered species, in the lower 48 states (Moulton 1997). But that's just one happy example; far more studies document the loss of species, habitat, and home. In a general Natural Conservancy study, researchers estimate that 36 percent of North American fish species and 67 percent of freshwater mussels are "either extinct, imperiled, or vulnerable" (Devine 1995). Other studies confirm this loss and suggest further that the rate of species decline on our rivers is increasing. It makes for a depressing read. More importantly, however, it belies the once-common notion that dams are unconditionally beneficial.

Given all the damage dams have caused, the most remarkable thing is that the dam decommissioning push did not occur sooner. But even if ecology, human rights, or the bank book didn't eventually lessen the allure of dams, then one other, desperately pragmatic fact would have: nearly all of the best, most appropriate sites have already been claimed. Of those projects that still linger, few are noted for feasibility. For instance, if built, the Animas-La Plata Dam in Colorado, on the Animas River, will require irrigation water to be pumped more than 900 vertical feet in order to deliver it to the day and bean fields the reservoir is intended to water (Reisner 1998). Authorized in 1968, signed into



law in 1988, and appropriated \$77 million over the past nine years (a fraction of its total cost), the Animas La Plata Dam would also hinder the over 30,000 commercial rafting trips per year on the river while no doubt ending the tenuous survival of two rare fish species, the Colorado squawfish and razorback sucker (Israelsen 1997). From a rational standpoint, the proposal simply doesn't make sense. On other rivers across the country, for other proposed dams, the results are the same: no money for funding, no decent location for building, and few, if any, benefits.

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With all this uncomplimentary evidence against dams, what's a federal agency to do with its time now that it's no longer offered carte blanche on American rivers? The Bureau of Reclamation, for one, is hardly down for the count. After noticing a shift in attitude during the late 1980s, when, as Pat Williams notes, the executive branch agencies relied on scientific studies more frequently, the Bureau introspectively considered its mission. And, as would any good bureaucratic organization, it accordingly rewrote its own purpose, first modestly proclaiming, "The arid West essentially has been reclaimed. The major rivers have been harnessed and facilities are in place or are being completed to meet the most pressing current water demands and those of the immediate future." Well, that's done! Now on with the real work: "Emphasis in reclamation programs [shall] shift from construction to operation and maintenance of existing facilities" under the "redefined official mission," which is to "manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public." This is certainly laudable—dam safety is not something to take lightly—although much of Reclamation's history is marked by economic and ecological unsoundness. And

then, finally, a little more horn-tooting: “In redirecting its programs and responsibilities, Reclamation substantially reduced its staff levels and budgets but remains a significant federal agency in the West” (Bureau of Reclamation homepage).

The Bureau admittedly deserves a rest. From early colonial settlement to 1900, Americans built over 2,500 dams. Contrast that to the last century: one billion acre feet of water storage behind over 75,000 dams—or enough “to cover the entire state of Texas with six feet of water” (DeLong 1998). The Bureau and the Army Corps of Engineers together are responsible for only about 750 of those dams, but theirs are the biggest and best. The rest fall into several categories: Bureau of Land Management (1,750), Native American lands (300), National Wildlife Refuges and the National Park System (430), and, although official estimates vary, “*at least* 50,000 general purpose dams” (emphasis added), including “thousands of privately-owned hydropower dams”—that is, so many dams that officials can only estimate their number (National Park Service 1996). The state of Texas has 6,342, more than any other state; Kansas has 5,699. Montana has one dam for every 265 residents (Shuman 1995). The lists go on, the results are the same: we’ve built a lot of dams.

In order to survive politically—because it can’t disregard or even dispute the growing body of evidence testifying to dams’ negative ecological effects—the Bureau had to reposition itself. Still, it’s easy to suspect the makeover is merely cosmetic. Updating official literature is but one shallow step toward a genuine interest in dismantling the past—dismantling some of the biggest structures on the planet. The Bureau can’t even claim it’s as enlightened as the Army Corps of Engineers, which has effectively committed itself to non-partisan, unbiased research on dam removal.

The Corps, in fact, is embroiled in the hottest dam topic to date. Four dams on the Snake River, a tributary to the Columbia, are at the center of the controversy. Little Goose, Lower Granite, Ice Harbor, and Lower Monumental Dams have reduced the number of migrating salmon—once a 16-million strong parade of scales from the mountains of Idaho to the Pacific Ocean—to a figure that could be counted by a child. It's not just those four dams, of course, that have nearly killed off the salmon population—the Columbia and most of its tributaries are little more than one long lake after another, intermittently fenced by dams. But the four dams are an economic drain, degrading both commercial and recreational fishing, requiring the expensive use of boat locks, and wasting taxpayer dollars on subsidized irrigation water (for only 13 farms) and electricity. When the Corps published just a preliminary economic analysis, it estimated the dams' removal would result in a net economic gain of \$158,534,883—a figure derived by comparing estimated gross to the current yearly economic loss of \$244,925,803 from the four dams (Whaley 1997).

Just two years later, in December 1998, the Corps finally sided with commercial and sport anglers, environmentalists, and wildlife activists, agreeing that the reservoirs behind each structure should be drawn down and that the river should be returned to its historical flow; an environmental impact statement is accordingly underway. With that monumental decision, dam decommissioning became more than an idea, more than a light bulb above the heads of a few dreamers. For an Army Corps panel to concur with an idea that would have once been considered anti-American is nothing short of revolutionary. The new American mood, the necessary dependence on science and recognition of economic shortcomings, has changed more than just voters—it's changed the agency that built those

four dams just two decades ago, an agency that had spent the last 80 years turning rivers into hyper-managed channels. It's probably safe to say that everything we know about hydropower and reservoirs and fish will never be the same.

## CHAPTER THREE

*In the morning we were awakened by the roaring sound of the river which gave forth a melody like that of a mighty band, the waters striking large and small rocks, thus making various sounds which all blended into one great volume of music.*

~ Henry Schenkofsky, Ph.D., *Seeing America First: The Elwha*

There is no mistaking the literary intentions of Henry Schenkofsky. Ph.D.: “This is a book about outdoor life written in the most simple possible form, and it is hoped that it will create a great deal of interest for both young and old and assist them in regulating their affairs so that at least a few days each year may be spent right among the things of nature.”

And that’s just the first sentence of his slim, 1920 book, *Seeing America First*, which chronicles his travels along the Elwha River in Washington state’s Olympic Peninsula. Suspecting this is more than a travelogue, I keep turning pages. The prose is clear and crisp, with neither over- nor under-statement. Tangential thoughts or phrases are absent, and descriptions are, for the most part, modestly, even painfully, brief, as if some Victorian remnant reined in the author: “Everything about the place looks as perfect as a gorgeous painting of the highest type.”

Still, he sometimes allows a bit more color—and drama—to invade his style. He writes, for example, about “the immense green trees on either side of the river,” and how they “throw such a volume of shadow over the river that the sun must do his best to break through between the trees, limbs, and leaves, to kiss the crystal water.” He writes, however, not only to praise, but also “to sound a warning” urging all Americans to “respect the laws of nature” else the world’s species will go the way of “our red-carrier pigeon, of which we seem to find not even a pair now, anywhere.” He later laments that “we as loyal, red-blooded Americans would commit an unforgivable crime if we should permit any more of these larger animals and birds to become extinct.”

Yes, his is the goal of many a naturalist: to stop the eradication of species, to protect and preserve the quality and integrity of land, and to enjoy that land deferentially, enamored, and often.

For 100-odd pages, he celebrates the “mighty Elwha,” a “mass of rocks over which the water rushes with such speed as to make a noise which resembles the oncoming of a long passenger train.” That is, the Elwha he writes about is free-flowing—at least for the almost 40 miles between its source in the Olympic Mountains to a bend just 4.9 miles away from its delta. There, even in 1920, the Elwha River already supported one hydroelectric dam, and construction of another was soon underway. Upstream from the dam, it was easy for Henry and his party to lose themselves in the beauty of the park, the sound of the water. But before long, with a second dam, and a second, larger reservoir, the only analogies appropriate for the Elwha would be a smooth-sailing ocean liner, bloated and slow.

I checked the library for other books like Henry Schenkofsky’s—books that lauded the great Elwha, unabashedly sang its virtues. Maybe, even with two dams perched on its all too brief passage, the river was still the stuff of legend. Alas, my search was in vain. Save Schenkofsky’s adoration, the Elwha hasn’t inspired songs or memoirs or best-selling novels optioned for movie rights. The Elwha isn’t the Columbia, the Blackfoot, the Mississippi—impressive and mythic all. Instead, it’s just a 44-mile long waterway that begins in the mountains and flows to the ocean (via the Strait of Juan de Fuca) like so many other small- and medium-sized—all right, let’s admit it: *mediocre*—rivers.

Still, this river could become a legend yet.

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In October 1992, the U.S. Congress passed and then-president George Bush signed the Elwha River Ecosystem and Fisheries Restoration Act. The Act called for the acquisition of the river's two dams by the Department of Interior, the analysis of the dams' continual effect on the ecosystem, and, if deemed to be the best avenue for restoration, the eventual dismantling of both hydroelectric structures. For such precedent-setting legislation, the vote was held relatively quietly, with mostly regional and environmental coverage and a small *New York Times* editorial. But over the past six years, as the news media has explored the value and future of dams, just the word Elwha now speaks volumes about dam removal, river restoration, and that most beloved of fish, salmon. Say Elwha and you've said it all.

The Elwha's two dams, the Elwha and the Glines Canyon, have become rather infamous bargaining chips, environmental hostages, if you will. As in any hostage crisis, there must be a villain, a terrorist mastermind with an evil finger poised over a detonator. Would that there were a detonator here that could put these two arthritic dams, both recognized by the National Register of Historic Places, out of commission. The so-called villain, however, Washington senior Senator Slade Gorton, is instead hoarding the figurative dynamite—the dollars—by refusing to allocate restoration funds for fear the dams' removal will spark a domino effect across the Pacific Northwest.

It's a lot of fuss for two relatively undistinguished dams, one of which, the Elwha, leaks uncontrollably—as much as 450 gallons per second—and in fact failed when it was initially filled. That was in 1912, and an avalanche of water erupted from the wall before gushing down the canyon and nearly wiping out a village on Native American land



(Joseph). Fortunately, no one was killed, and though the 105 feet high dam was repaired, the leak remained.

The Elwha's big brother is the 210-foot high Glines Canyon Dam, which is upstream about nine miles and located within Olympic National Park. Even though, along with dam, 83 percent of the river's watershed is located within the park, the dam was ignored in the 1938 legislation authorizing ONP. Together, the two dams barely produce enough electricity—28.6 megawatts—to provide 40 percent of an area pulp mill's needs. Worse, neither dam is technically legal. Built without fish ladders despite Washington state law, the two dams have effectively ruined what was once one of the Pacific Northwest's most diverse and prolific salmon runs.

Many rivers have been lauded for their amazing salmon runs, but the Elwha seems to encourage particularly rhapsodic memories, especially since on the 44 miles of the main river and the 30 or so miles of its tributaries, it was once home to all “ten of the Pacific Northwest's native anadromous salmon and trout species” (Joseph). These were salmon big enough to make a grown angler weep with happiness—one hundred pound chinooks racing up-stream alongside coho, chum, and sockeye. Before being dammed, the river was home to 380,000 fish; now, it barely supports 3,000 on the five miles between the ocean and the Elwha Dam. Dramatic numbers, but even as early as 1924, when construction on the Glines Canyon Dam began, salmon runs had already dropped as much as 75 percent (NPS). And it can still get worse: only 50 pink salmon showed up in 1997, and at least two other runs are already extinct (Joseph 1998).

For those fish that do survive, life is bleak: lower than normal oxygen levels, higher than normal temperatures. With only five miles between the delta and the lower dam, the

fish are crowded together, competing for the meager silt and gravel not trapped behind the concrete wall on which to spawn. Both up and down the food chain, other species suffer too. Salmon carcasses once sustained 22 species of wildlife while returning organic material, phosphorous, and nitrogen to the aquatic ecosystem. In its draft environmental impact statement, the National Park Service proposed that improved fish populations would foster communities of “northern spotted owl, marbled murrelet, Pacific fisher, harlequin duck, bull trout, Vaux’s swift, pileated woodpecker, and several rare amphibian species” (NPS 1997). Without a restored river, these species will continue to suffer.

So what about that restored river? Why did the U.S. Congress ever give this issue the time of day? It actually started much, much earlier than 1992. The Elwha Dam sits directly on the Lower Elwha Klallam tribe’s sacred religious ground, and other significant land is inundated by the dam’s reservoir, Lake Aldwell. Since the dam was finished in 1914, the Klallam nation has seen its livelihood and culture, both based on fishing, eradicated by the dam’s killing ways despite a treaty guaranteeing a reservation fishery. In 1915, a hatchery was built according to treaty provisions, but it failed in 1922 and was soon abandoned.

It’s a profound understatement to say that salmon is an important species to the indigenous people of the Pacific Northwest. Many tribes consider the fish a kindred spirit, that salmon are in fact reincarnated people—people who in their new life nourish their human friends and family. Others approach the salmon as a direct manifestation of god, or at least a god of the fishes. Concepts of time were built around the salmon’s cyclical return to rivers; concepts of value were measured in yearly salmon harvests. Over just one

lifetime, these concepts, these belief systems, have been challenged in ways never before thought possible.

The Pacific Northwest river systems once welcomed 16 million sea-run trout and salmon each year. On March 17, 1999, the National Marine Fisheries Service and the Clinton administration listed the following fish populations as threatened under the Endangered Species Act: Puget Sound chinook, Ozette Lake sockeye, Hood Canal summer-run chum, Middle Columbia River steelhead, Lower Columbia River chinook, Columbia River chum, and Upper Willamette River chinook and steelhead. On the Upper Columbia River, spring-run chinook were added to the endangered list. Even before the announcement, 15 distinct populations of anadromous fish were already listed. To go from millions of fish to that dangerous edge just over nothing would be absurd if it weren't so sad. Where does a culture based on fish go, what does it do, when the fish are gone?

The Lower Elwha Klallam—whose name means “strong people”—decided to act. In 1976, Glines Canyon's license under the Federal Energy Regulatory Commission (FERC) expired. FERC oversees and licenses private dams (which will be discussed in detail in the next chapter), and the agency supposedly would be responsible for renewing Glines Canyon's operating permit. The tribe disagreed, arguing that because the dam was within the boundaries of Olympic National Park, FERC no longer had jurisdiction. FERC was already backlogged—and in the process of being realigned under new legislation—and so it made no move either way regarding relicensing. After a decade of letters and findings, in January 1986, the tribe filed the first of several motions against FERC, asking for a fish restoration plan based primarily on the removal of both dams. Even if FERC was found to

be no longer legally responsible for Glines Canyon, the tribe wanted to promote and study the removal of the two dams.

In April, the National Marine Fisheries Service intervened; salmon are sea-run fish and therefore under NMFS's jurisdiction. The two agencies tried to tangle out unclear responsibilities, and before long, the National Park Service was involved, too, for Glines Canyon is located within Olympic National Park. The next month, Friends of the Earth, the Sierra Club, the Seattle Audubon Society, and Olympic Park Associates joined the tribe's suit, and from there came a good three years of volleys: requests for information, "late interventions," motions and proceedings, et cetera. Finally, in 1989, NMFS issued a study evaluating removal of both dams and outlining an Environmental Impact Statement, which FERC would write.

In February 1991, FERC issued its Draft Environmental Impact Assessment, finally admitting that only removal of the two dams will "result in full restoration of the Elwha River ecosystem and anadromous fish." The agency was quickly backed up by the General Accounting Office, which crunched the numbers to reveal the astronomical costs of restoration projects established around standing—rather than removed—dams. Keeping the dams, it found, would cost more than removing them and replacing the lost power with electricity purchased from Bonneville Power Administration. Before long, an additional ten environmental organizations entered the fray, supporting the original coalition. Congress got wind of the developments in Washington state, and in April 1992, a bill—labeled "enviro-pork" by the *Wall Street Journal*—was introduced by seven Representatives in the House with the approval of the dams' owners, who knew not only

that the dams were ineffectual and old, but also that they would profit through the sale of the dams to the federal government.

The Act passed later that same year, in October, with the proverbial flying colors. The House okayed its version, sent it to the Senate, which passed the same version by a voice vote. Along the way, it was referred to a few committees, mentioned here and there in the Congressional Record, and finally ended up on President Bush's desk for signing on October 24, 1992. Considering the contention leading up to and, especially, following the passage, one might expect more dissent, more curse-ridden battles in the legislative chambers. Instead, the Elwha Restoration Act quietly became law, and quickly became, as far as the physical removal of the dams were concerned, relatively meaningless. That is, as with most legislation, simple passage did not spur instantaneous action. In our checks-and-balances government, controls are established to determine, hopefully, the most beneficial means of implementing a law. Having inquiries and analyses helps safeguard sudden, ill-informed decisions.

So the Department of Interior and National Park Service began their formal analysis. Under the 1992 law, the DOI was responsible for verifying that removal was the best option economically, ecologically, and culturally. The report was submitted in January 1994, and the Secretary of Interior prescribed removal as the best and only way to restore the native fisheries on the Elwha River—and the most cost efficient. Just outfitting the dams with basic fish passages, which are not always successful, would cost over \$38 million. Soon after came the Environmental Impact Statements, spearheaded by NPS, which, it was finally determined in 1990, oversees Glines Canyon. In August 1995, the

draft EIS favored dam removal out of a handful of mitigation options. an opinion echoed by the November 1996 final EIS, which was released after a year of public workshops.

By now, we had on the side of dam removal the Lower Elwha Klallam Tribe, virtually every environmental organization within 500 miles, Congress, the executive branch agencies (US Fish & Wildlife Service, Bureau of Indian Affairs, National Park Service, Interior Department, National Marine Fisheries Service), most of Washington's Congressional delegation, and numerous commercial fishing groups. Sport anglers became more active and vocal, too, especially after NPS estimated that sport fishing and associated tourism will generate \$164 million per year for the area. Across the nation, tourists, conservationists, and general lovers of salmon and wild rivers praised the initiative. After being elected, President Clinton quickly ranked Elwha removal high on his environmental to-do list. In all, the Elwha Restoration Act and the subsequent decisions and discussions were seemingly wholly adored—a magnificent testament to grass roots pressure and top-down legislation working together responsibly.

But a few stakeholders still had to be convinced.

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Scholars and pundits are busily unpacking the meaning and efficacy of the collaboration movement, an attempt to solve polemical problems through dialogue, consensus, and, most often, an awareness of and appreciation for shared landscape. In pockets around the country, and especially in the West, citizens with normally divergent views are merging their resources—be they intellectual, scientific, mechanical, or political—to combat the very real problems that face their communities. In a nutshell, the point is less fighting with your neighbors, more results for the neighborhood—or town or county or watershed or

whatever place the decisions will affect. Unfortunately, the language and processes of consensus-building and regionally-based decision-making have been reduced to catch phrases and clichés—a trend on which the media can report, making blanket statements about whether those crazy, extreme Westerners will ever get along.

This very brief description doesn't really do much for or against collaborative efforts, and there are plenty of people who are either for or against it, for a variety of reasons. But the pros and cons of yet another movement aren't really the point. Instead, it helps to have at least a working understanding of this trend to understand how the people of Port Angeles, those most directly affected by the removal of the Elwha Dams after the Lower Elwha Klallam nation, determined that the dams' decommission was the best choice for their community.

The most immediate response might be: who cares? The fish are dying, the tribe is suffering, the dam is leaking—and a lot of big hitters, the DOI and NPS among them, are pushing the issue right along. So the people of Port Angeles don't like it? Big deal. To the Port Angelenos, however, it mattered considerably. The dams' owners, James River Corporation, couldn't forecast the company's future, nor could the pulp mill, owned by Daishowa America, that purchased the two dams' hydropower. Workers accordingly worried. The city fretted about water quality, replacement power, and lost tax revenues. Commercial and tribal fishing groups saw their livelihoods hanging in the balance. And citizens feared degraded drinking water and noise and other pollution. When the Act was passed in 1992, it had appeared to end the years of motions, petitions, and lawsuits. Imagine the disappointment, then, when still more analyses, workshops, assessments put

the issue into a seemingly perpetual limbo—when, in the words of one Port Angeleno. “Nothing at all happened.” Malaise was rampant.

After the 1994 election, the Congressional complexion changed dramatically, and the stalemate appeared permanent. Would the Act be implemented? Would the funding be found? In an attempt to force something, *anything*, to happen, Trout Unlimited and the Olympic Park Association sat down with James River to discuss the lack of leadership, the community’s concerns that electric generating capacity and jobs would be lost, and the state of the salmon, which continued to decline (Campbell 1998).

Eventually, 13 citizens—a “group of reasonable people”—came together to review the facts, propose timely solutions, and alleviate the community’s unrest. On the panel: a board member of the North Olympic Land Trust; a former paper mill owner; the Executive Director of the Clallam County Economic Development Council (also a board member of the North Olympic Salmon Coalition); a forester and City Council member; a former Marine lieutenant; a college dean; a dairy farmer; and other concerned citizens. Leading the group was a City Council member who also represented James River, the dams’ owners (ECAC 1996).

In addition to discussing the frustrating bureaucratic paralysis, the Elwha Citizens Advisory Committee (ECAC) also wanted to tackle the deconstruction issue as a whole—that is, should they support the removal of the two dams? While it may seem like an odd time to pose such a query—the Act had now been around for a few years—the committee members argue that it makes perfect sense: Port Angeles had a lot to lose in the interim, and without concrete decisions and action, so did the fish. So they brought out the facts of the case, compared the claims, crunched the numbers. They talked to national and local



environmental groups, their representatives on both the state and national level, and representatives from Daishowa America, which was the second largest employer in Clallam County. They read the Secretary's report and the EIS's.

And in the end, ECAC said yes, let's take out these dams ... soon. In a report ECAC published and distributed to every group, person, and agency involved, the group set forth its own stipulations: protection of property values, public access to the river corridor, and adequate studies of sediment dispersal. But it also admitted, "The Elwha dams have served the Port Angeles community well, yet their contribution has come at a price." The only response, as they saw it, was to join the 85% of the rest of the state of Washington who in public opinion polls voiced their support removing the Elwha dams. And the citizens of Port Angeles knew that the long-term economic benefits of restoration jobs, a revived fishery, and an expanded tourist industry would give the town a firmer foundation than one based only on extraction. Think of the tourism! Think of the fish! Yes, they told the rest of the citizens in Port Angeles. Yes, they urged their Congressional representatives. Yes, they urged their Senators.

Unfortunately, one Senator wasn't biting.

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Will history remember Republican Senator Slade Gorton for his stalwart opposition to radical fringe environmental groups and liberal-leaning presidents who wanted to topple Columbia system dams, one after another, like so many building blocks? Or will history cruise right over him, telling instead how salmon and steelhead were nearly extinct until coalitions of stakeholders pooled their energies, resources, and smarts to re-think the systematic fencing in of our rivers? It's a good question, and one that I'll sit out

anxiously, knowing on which side my money is placed. But the answer is a long way off. So far, in this region, Gorton holds the purse-strings, not one dam is close to coming down, and the radical fringe is looking downright moderate.

Gorton co-sponsored the Elwha Restoration Act in the Senate, and his “aye” was duly noted when the chamber voted. He’s talked to his constituency, attended the Elwha Citizens’ Advisory Committee meetings. And like any good pol, he’s done a few public opinion polls. For some reason, though, on this issue he won’t budge. He’s not supporting—or, more importantly, funding—the removal of any dam until his stipulations are met. The funding point is crucial: Gorton is the Chairman of the of the Senate Appropriations Subcommittee on the Interior. As far as allocating the cash—and every federal project needs cash—what he says goes.

At first, his reason for backing away from his 1992 vote was simple frugality. In 1997, he explained, “Washington state does quite well under this year’s Interior Appropriations bill. Funding the removal of the lower Elwha River dam would dramatically top the scales away from fairness, and rightly cause justifiable and successful opposition from my colleagues around the country who have vital programs in their own states that need funding” (Gorton 1997). It’s not every day that you hear a Senator pushing money *away* from his state to the honorable gentleman from Kansas.

Gorton backed away from this approach and instead began voicing his suspicions. Ultimately, whatever the merits of removing the Elwha dams, Gorton feared the dam domino effect: one or two come down, and soon every hippie with a hammer is clinking away at Bonneville or Grand Coulee or Ice Harbor or any other dam in the Columbia Valley watershed. After pressure from Secretary of the Interior Bruce Babbitt, Gorton

eventually agreed to support the removal, albeit with several conditions of his own. In a September 15, 1997, press release, Gorton proposed that only the lower dam, the Elwha, be removed initially. Following a 12-year assessment period of fish population recovery, Congress, the National Park Service, and the surrounding communities can then decide if the impact was positive enough to necessitate the Glines removal. Second, Gorton said, “No dam on the Columbia or Snake River system can be removed or breached without the approval of Congress. Those who want to make a habit of dam removal should understand this: I will never support their proposals to remove Snake or Columbia River dams. Never” (Gorton 1997).

Within a month, Gorton had helped secure \$3 million dollars in the Interior Appropriations Conference Report, passed October 28, 1997. This amount was added to \$8 million previously appropriated, and the 1998 federal budget provided an additional \$25 million in funds to fully implement the 1992 Act. Conservationists were thrilled—this total was more than enough to cover the cost—almost \$30 million—of acquiring the two dams from their owner. Moreover, funding for the actual restoration, estimated to be \$80 million, appeared readily available. In 1997, the federal Land and Water Conservation Fund ballooned to an impressive \$700 million. Designed to preserve and restore “irreplaceable lands of natural beauty and unique recreational value,” the fund was earmarked for Elwha as well as other unique restoration projects.

Part of the appropriated cash windfall was immediately forwarded to the National Park Service for additional studies. Because this is one of the largest removal projects to date, NPS, which in the interim will own the dams and the surrounding land, estimates three years of planning before the dams actually come down. Not only are there still hydrologic,

engineering, ecological details to sort through, but several other basic logistics remain unsolved. For example, after the dams are removed, ownership of the approximately 1,000 acres surrounding or inundated by the Elwha Dam is still undetermined. Such details, however, remain in limbo: Gorton's change of heart was too good to be true.

When he sided with the Clinton administration, Gorton made his position clear: he favored a 12-year moratorium on the removal of Glines Canyon, and he opposed any efforts to remove Columbia or Snake River dams. But the Senator wanted legal backing, and so in April 1998, Gorton introduced an amendment to the Elwha Restoration Act that guarantees the future of Pacific Northwest dams. He wrote that “unless specifically authorized by an Act of Congress, a Federal or State agency shall not require, approve, authorize, fund, or undertake any action that would impair the ability of flood control facilities or reduce the power and energy generating capacity of any dam on the Columbia or Snake Rivers or their tributaries licensed by the Federal Energy Regulatory Commission.” Gorton also attempted to limit actions on the Columbia or Snake that would threaten navigation by boats up the rivers—boats that sail on calm waters from the Pacific to Lewiston, Idaho—and to halt any funding for research on reducing that navigation capability.

His bill has gone nowhere in the Senate, in part because it's entirely superfluous. Although figures vary, there are approximately 200 dams on the Columbia and Snake Rivers, and only four of those dams—the four on the Lower Snake—are proposed for removal. The four dams, however, like many<sup>δ</sup> the other big powerhouses, are federal and therefore already under Congressional control: it's the law (Paulson 1999). Nothing can be removed without federal say-so. State dams, of course, should fall under state control.

As for the smaller, privately-owned dams, most are licensed by FERC, a federal agency that surely wouldn't appreciate asking Congress for permission to do its job. Moreover, private dam owners probably don't want Congressional veto-power over their dams. For example, the Condit Dam on the White Salmon River is being removed by its owners after negotiations with federal regulators. The process would undoubtedly be much different if still further approval were required.

Even with a stagnant bill, Gorton is still in control. At least through his reelection campaign in 2000, he steers the Interior Appropriations Subcommittee. His tightly closed fist around the money bags is protection enough. In addition, he seems content to square off against Secretary of Interior Bruce Babbitt, who has accused Gorton of "election year politics" by attempting to "rewrite federal hydropower policy" (Paulson 1999). The battle has raged on now for over a year, with neither side willing to negotiate, although Representative Norm Dicks and Senator Patty Murray, both Democrats from Washington, have urged Gorton to reconsider while offering their powers of persuasion.

Public opinion, for one, favors Babbitt: commercial and recreational fishing groups, Northwest-based scientists, and a Greek chorus of environmental groups, most notably Trout Unlimited, the 100,000-strong trout and salmon conservation organization, have called for Gorton to back down. The latter groups has been especially vocal: the Senator has claimed that he's merely saving the Northwest from a "radical dam removal movement," a claim the group finds ridiculous. Trout Unlimited radical? That's like calling James Dobson's Focus on the Family secular. With a mostly wealthy, mostly white member base, TU is the picture of moderation. It's no Earth First!. It doesn't want to dynamite dams; it just wants to fish.

Trout Unlimited's commitment illustrates this issue's shift from a radical idea proposed by a typically overlooked minority, Native Americans, to a mainstream, makes-sense cause. Gorton has been skewered by virtually every moderate group in the Pacific Northwest. About the only people behind him are irrigation farmers in eastern Washington and Oregon and the residents of and around Clarkston, Washington, and Lewiston, Idaho, whose immediate livelihood is built squarely on the tops of Ice Harbor, Little Goose, Lower Monumental, Lower Granite, and the Lower Snake River. But this isn't about those dams or even that river. The immediate issue is the Elwha River—a river, not a negotiating piece. For Gorton to play games with the future of fish populations on the Elwha wastes resources and time and completely disregards his constituents' wishes. The salmon and trout aren't improving by themselves, and the people have spoken: they want to save the fish. And, perhaps, somewhere deep inside, Gorton wants to save the Elwha fish, too. In March, when the nine salmon species were listed under the ESA, Gorton said, "The prospect of the Puget Sound region without a vibrant salmon resource is as unthinkable as the Pacific Northwest without the Cascades" (Kenworthy 1999). We can only hope Senator Gorton does not allow the unthinkable to happen.

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Even with Gorton's posturing and flexing, the dam removal process still rolls ahead. In February 1999, representatives from the National Park Service, James River, and Daishowa America met to negotiate the sale of the dams to the NPS. Once this is done, the dams' removal will seem all the more real, more within reach. David Morris.

superintendent of ONP, reinforces this sentiment: “This is a vital and exciting step in the path to restoring the ecosystem and fisheries of the Elwha River.”

Eventually, someday, the dams will be removed. And at that time, the process will go something like this: first, diversion channels will be built on the Elwha’s west side. The dam itself—including the body, the flumes, and the powerhouse—will then be removed. This total removal is a testament to the dam’s small size; most other dams being considered for deconstruction, including the Glines Canyon, will probably leave behind much of their external structure, with only the arch itself removed, in order to save money. Glines Canyon will also require further attention, for it’s built in a deep ravine, and its gravity arch, which curves into the river, holding it back, will be removed incrementally, allowing for slow disbursement of the decades-worth of sediment behind that wall.

But this is all conjecture. Until Gorton is forced to release the funding, or until he is removed from office, the Elwha Dams remain only a symbol of dam removal efforts, an inspiring mix of federal power and local knowledge, and of power abuse and local patience. This chapter should end with the dams’ removal, should include glorious tales of the successful repopulation of salmon in forgotten tributaries and upper reaches of river. Instead, I can only end with a big fat question mark. Or maybe an ellipsis. Either way, nothing substantial, nothing meaningful or real. Until there’s money, the dams wait, just as they’ve waited for most of this century. And in front of the dams, the fish wait; perhaps some genetic memory tells them that behind the concrete lies miles of paradise, perhaps not. Either way, those fish do not know the icy reaches of the upper Olympics, where Henry Schenkofsky found the mouth the Elwha, and found it well:

I discovered that six falls flow into one great big stream and there the real live and swift Elwha has her definite beginning. For good fishing, we had to come down about twenty miles. There several varieties are most plentiful. In the main stream they were difficult to get, but we discovered several holes on a side stream where we could go any time and catch a big mess of the finest trout. Several large trees had fallen across the stream and a large number of timbers had also been washed against these trees, making a kind of dam. To stand behind a log and hang the line over and pull them out one after the other was like dipping them out of a barrel. What we could not eat we smoked.



## CHAPTER FOUR

*Everything dies, baby, that's a fact.*

~ Bruce Springsteen, "Atlantic City"

Let's start with a little historical perspective. Edwards Dam, on Maine's Kennebec River, was built in 1837, the same year President Martin Van Buren took office and Queen Victoria ascended to the throne of Britain. Just a year before, in 1836, Samuel Colt patented his revolving barrel gun, and the siege at the Alamo began. Daguerreotype photography wouldn't be invented for another two years. Maine was one of only 26 states in America. As he watched the dam's construction from the banks of the Kennebec, Nathaniel Hawthorne wrote in his journal, "While looking at the rushing and rippling stream, I saw a great fish, some six feet long and thick in proportion, suddenly emerge at whole length, turn a somersault, and then vanish again beneath the water." That was 13 years before Hawthorne published *The Scarlet Letter*.

Now let's talk about some history *making*. On November 25, 1997, the Federal Energy Regulatory Commission (FERC), the agency overseeing privately-owned dams, denied a renewal application submitted by Edwards Manufacturing Company, the dam's owner. The logistics of this will be discussed subsequently, but in short, it means Edwards is coming down. We already know that this in itself isn't exactly precedent-setting, but Edwards is the first dam in the United States to have its renewal application denied by FERC, the first to have its very existence questioned by an agency notorious for rubber stamping hydroelectric projects. With FERC's decision, there remained only one viable—and legal—option: decommissioning.

So it wasn't quite as significant as walking on the moon or tearing down the Berlin Wall, but it was historical nonetheless, even when compared to this remarkably old dam's already-considerable history. By sheer age alone, Edwards is entrenched with a past that to us today is the stuff of mostly-forgotten high school textbooks. Yet still it stands. 917

feet long, 25 feet high, 40 miles from the Atlantic. It stands as a testament to the ingenuity and sense of quality of another era—the dam, after all, *works*. It pumps electricity—one tenth of one percent of Maine’s electrical output. It holds back water. But its endurance, its inherent utility are not reasons enough to keep it on the Kennebec.

Generally, our disposable culture can’t wait to get rid of relics. We want new, new, new, all the time, labeling our antiques and archives as either worthless or kitschy or both. So we chatter endlessly about the next model, microchip, or millennium; we erect digital clocks just to count down the days until the year 2000 begins, and yesterday is as removed as the year 1000. Who uses daguerreotype photography these days? Who’s writing biographies on Martin Van Buren? In the increasingly rare incidents when we cling to something old, faded, and worn, it’s often not because of emotional attachment or familial history. It’s because it has monetary worth. Classic cars, for example, or refinished bureaus with glass in-laid doors. Or unnecessary dams, with contracts guaranteeing their electricity will be purchased at three times the going rate.

In the simplest terms, Edwards has been a cash cow for several lifetimes, and owner Edwards Manufacturing has hardly acted with nostalgic intentions. Thanks to an agreement with Central Maine Power, up until 1998, Edwards Manufacturing provided power to 1,600 homes for—yes, you read it correctly—three times the average kilowatt per hour rate throughout the rest of the state. Accordingly, the company grossed \$2.5 million in 1996 (the last year figures are available) from a dam that controls no floods, irrigates no fields, and employs only four people. It is no wonder, then, that Edwards has been around so long, and would have continued to stick around if not for FERC’s ruling. Indeed, Edwards Manufacturing not only applied for a renewed operating license in 1993,

but also for permission to expand its operations and increase the dam's power generation. Profit is a powerful incentive.

Realistically, though, what else could Edwards Manufacturing do? For the past decade, regional environmentalists and anglers had been comparing salmon mortality and tourism dollars to kilowatts and fish ladder costs, but when the checks kept coming in for so little effort, maintaining the status quo seemed sensible and fiscally smart—the proverbial no-brainer. The opportunity for making easy money presented itself because the system regulating privately-owned dams is established primarily to encourage profits. That is, the chief regulatory agency of private dams, FERC, has for most of its tenure heartily encouraged rampant hydroelectric development regardless of the ecological costs—and so, too, have public dam builders like the Army Corps of Engineers and the Bureau of Reclamation. If we learn our values and ethics from parents and teachers and other role models, then perhaps we can say that private dam owners learned their values from FERC and ACE and Reclamation.

This is not to lay blame solely at the altar of the executive branch or to completely absolve Edwards Manufacturing. In fact, in a dramatic ideological shift, FERC is directly behind the removal of Edwards Dam, so certainly the agency isn't all bad. And the owner, after a little legal wrangling and a lot of opposition, is only recently on the bandwagon. But for too long, it looked as though the Edwards's cash register would keep ringing and ringing, a continuous money-maker, fish-killer, and blatant symbol of hydro-centric policies. If the Elwha Dam is the story of a dozen different interests, working from different angles, at different times, with different resources, eventually bringing about, hopefully, the removal of two dams, then the Edwards Dam is the story of

the Federal Energy Regulatory Commission (FERC), a mostly unknown government agency that in addition to hydroelectricity also regulates natural gas and oil interests. It's the story of how FERC gradually realized its potential, its duty to stop treating dams like perpetual motion machines, and of how Edwards finally joined daguerreotypes and Victorians as bygones of another era.

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As is so often the case, Law A begot Law B and so on in a bureaucratic string as the U.S. attempted to sort out a domestic policy structure. Certainly in 1776, an agency devoted to anything but horsepower could not have been predicted, nor, in 1920, could a more developed water power agency have been fully realized. In that latter year, Congress passed the Federal Water Power Act (FWPA), and FERC was known as the Federal Power Commission (FPC). That agency was itself the consolidation of three other federal groups—authorized by previous acts—which put authority of hydroelectric licensing in one department under a “common policy” (Bogley Roth 1993). FPC's jurisdiction and authority were almost immediately challenged in lawsuits by states uninterested in answering to a federal entity, starting a trend that continues still today—neither private dam owners nor state agencies like the feds pulling rank.

Despite the legal obstacles and legislative amendments, FERC survived, albeit in several different acronymic forms. Since 1977, it has held its present-day moniker, as designated by the Department of Energy Organization Act, and has regulated oil, natural gas, and hydropower. Heading the three branches is a five member panel made up of representatives nominated by the president, most of whom have come from the oil and

natural gas industries, with a only a handful representing hydropower and none representing fish.

FERC's primary hydropower responsibilities are to issue preliminary permits (granted for up to three years), project licenses (30-50 years), and exemptions from licensing for private-dam applicants. It's the middle duty, issuing project licenses, that is the most time-consuming, damaging, and divisive. The goal, according to the 1920 and 1935 Acts, is to approve projects with demonstrated public benefit—a decidedly ambiguous phrase, and one that FERC has taken considerable liberties with over the decades. In 1967, though, the Supreme Court decided to elucidate.

The case was *Udall v. Federal Power Commission* (FERC's then-name), a protest against an FPC-approved project on the Columbia. When the case reached the high court, the nine justices ruled that FERC had failed to adequately consult with other federal agencies, specifically those charged with protecting fish populations, which would be threatened by the new Columbia project. In its decision, the Supreme Court rejected FPC's self-appointed autonomy, demanded cooperation from the agency, and then considered the nature of "public interest." Previously, pretty much all dams were considered beneficial to the public—the FPC hardly ever turned down an application for a license. The Supreme Court, however, "broadly defined 'public interest' to include the interest of 'preserving reaches of wild rivers and wilderness areas, the preservation of anadromous fish for commercial and recreational purposes, and the protection of wildlife'" (Grimm 1990). This stipulation for the recognizance of fish and wildlife protection—including an evaluation of the benefits of power compared to the affects on fish—came at a time when Congress was reconsidering its own regard for nature.

In the years following the Supreme Court's 1967 decision, FERC rarely adhered to this new definition of public interest, and it accordingly found itself in court again and again—a time- and money-consuming effort, and often a fix that came too late for fish. Throughout the 1970s, FERC managed to disregard the National Environmental Policy Act, the Fish and Wildlife Conservation Act (1982), the Northwest Power Act (1980), and the Salmon and Steelhead Conservation and Enhancement Act (1980). For example, in 1983, the agency was sued for relicensing the Rock Island Dam on the Columbia River without holding hearings, reviewing studies, or developing mitigation options for fish mortality as required by the previous Acts (Bodi 1986). Other suits have focused on FERC's noncompliance with laws requiring the agency to consult with other state and federal entities and FERC's refusal to look at the cumulative effects of several dams on one river. This consistent neglect for “environmental policy indicate[d] that the Commission [wa]s deeply entrenched in a history of noncompliance favoring development over environment ... [and that] judicial review alone [was] insufficient to bring about fundamental change in decision making procedures” (Feldman 1988). The only response, then, was legislative action.

By 1984, an influential group including Native American nations, state and federal fish and wildlife agencies, the National Marine Fisheries Service, and various environmental and fishing organizations urged the House of Representatives to hold hearings on FERC's role in restoring or at least maintaining water resources. In 1985, the Senate followed with its own hearings, and the result of the fact-finding was a joint report berating FERC for thinking that “power development is [an] absolute priority” (98<sup>th</sup> Congress). The committees wrote, “More often than not, [FERC's licensing procedures]

have resulted in non-power resources being treated as secondary concerns” (H.R. Rep. No. 507, *supra* note 1985).

Soon after the report came the Energy Consumers Protection Act, which was passed in 1986 and signed by Ronald Reagan. The thrust of the Act amended Section 4(e) of the Federal Power Act, which now demands “equal consideration to the purposes of energy conservation, the protection of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality” (Grimm 1990). The Act continued:

That in order to adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including all related spawning grounds and habitat) affected by the development, operation, and management of the project, each license issued under this subchapter shall include conditions for such protection, mitigation, and enhancement (16 U.S.C. § 803).

Echoing previous Supreme and Ninth Circuit Courts rulings, this new section also required FERC to consider the recommendations of both state and federal fish and wildlife agencies and to negotiate with those agencies in the event a disagreement occurs—and all *before* a license can be granted (Bogley Roth 1993). Typically, FERC would ignore any recommendations that didn’t mesh with its own ideas or goals, and the agency made plenty of enemies with the National Marine Fisheries Service, the Fish and Wildlife Service, and the Bureau of Indian Affairs. Now, FERC would have to resolve any inconsistencies first, although over the next few years, FERC managed to find wiggle room in the law’s new wording and, accordingly, itself back in court.

Thirteen years after the Energy Consumers and Protection Act, FERC is still hard to pin down. Agency literature admits, “Today, there’s a heavy emphasis on protecting environmental values. Twenty years from now the picture may be different.” Such a



statement suggests FERC is just biding its time until once again turbines will run day and night at full speed on every possible inch of the country's waterways—and damn this crazy fish-centric contingency. But maybe not. Maybe the agency is committed to the ECPA, to cooperation with other agencies, and to fish in general. Certainly other points in its official literature imply as much: FERC “chooses regulatory approaches that foster competitive markets whenever possible, assures access to reliable service at a reasonable price, and gives full and fair consideration to environmental and community impacts in assessing the public interest of energy projects” (FERC homepage). Illustrating this attention to environment and community, the agency denied a 1987 application for a new dam at Kootenai Falls, Montana, because “the project would have destroyed the scenic beauty of the Falls, seriously degraded an outstanding trout fishery, and interfered with the religious practices of the Kootenai Indians” (1989 Hearings, *supra* note 67). After almost a century of approving one dam after another, the agency based a decision on more than just kilowatts—and not even a reluctant decision at that.

A decade later, the agency would finally fell an existing dam.

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Here's the part of the chapter where I tell you about the wonders of the Kennebec—the clear, cool water shaded by miles of dense, emerald trees. Maybe I pull out another Hawthorne quote attesting to the river's supreme beauty and wonder. Or perhaps the recollection of an old-timer who practically grew up on the banks. Unfortunately, while historical record attests to <sup>the</sup> Kennebec's once-lauded beauty and quality, nothing about this river's immediate past suggests it once teemed with healthy fish, much less giddy, splashing old-timers. In the 1940s, 50s, and 60s, the river was the primary highway for

transporting logs to the pulp mills. They'd fill the expanse of river for 30 miles, leaving behind soggy strips of bark before reaching the mills, which retrieved the logs and replaced them with toxic discharge from the pulp-making process. Just a few miles later, untreated municipal sewage was added to the mix; river life accordingly suffered. Fumes from the river, filling the air with an almost unearthly smell, ate paint from houses and cars. Pregnant women were discouraged from eating the few fish in the river that survived in the oxygen-depleted ooze. By the 70s, when the Clean Water Act was passed, the river was a poster child for a national disaster area.

In 1974, transporting logs on the river was banned, and other measures to improve water quality followed (Harden 1997). The efforts worked, although occasional warnings are issued regarding mercury and PCB levels (Marbella 1998), and paper effluent's long-term effects continue to harm striped bass (Williams 1993). Still, the river is hardly the sewage dump it once was; the stench is gone, and eagles, kingfishers, heron, cormorants, swifts, and swallows dart and swoop around the surface of the water, enjoying a decidedly healthier bounty. Another bounty, a fish bounty, is eagerly anticipated by the locals, who envision Augusta as a popular tourist and recreation destination based on a thriving fishery. That fishery currently waits below the dam: Atlantic salmon, American shad, red herring, striped bass, Atlantic sturgeon, rainbow smelt, American eel, and the shortnose sturgeon, which is listed under the Endangered Species Act.

Before the decision to remove the dam, other measures were taken to sustain the fish populations, including fish ladders, which would have cost upward of \$10 million (Polson). Edwards was built with ladders in order to comply with state law, but a year after completion, they washed away in a spring flood, never to be replaced (Marbella

1998). Even if the passages existed, many fish, like striped bass, sturgeon, and smelt, won't even use them, so other mitigation measures would be necessary to ensure population improvements. One such measure, by the U.S. Fish and Wildlife Service, attempted to vacuum alewives, a major food source for the sea-run species, with a special pump and then deposit them into a containment area before trucking them to various spawning habitats (Marbella 1998). Unsurprisingly, this didn't work very well, which is probably a blessing: if it had sustained or improved fish populations, FERC might have been less inclined to vote against the relicense.

Edwards's was one of 262 dams up for relicensing in 1993, the year its initial 50 year license expired. Of those 262—the “Class of '93” they're called—only 51% have gone through the FERC relicense process, and only Edwards has had its license denied. This is not indicative of a lazy agency, for the relicensing process is quite long: the dam owner first submits a preliminary permit application, which may or may not be approved by FERC. If the preliminary permit is okayed, FERC then stipulates which studies and research must be completed for the owner to receive a new license (Feldman 1988). Before 1993, a few dams each year came up for renewal, so the back-and-forth, give-and-take arrangement worked well between the agency and hydropower companies. But as more and more dams' licenses expired each year, a backlog developed, and FERC has struggled to keep up, especially with a limited environmental staff and other resource responsibilities. Eventually, this backlog will increase dramatically for the agency. Of the 1,800 dams FERC oversees, another 550 will expire by 2012 (River Renewal 1996).

Until the 1997 ruling, Edwards operated on temporary, one year agreements with FERC, and for a while, as the dam owners and the agency discussed increasing

Edwards's generating capacity, it appeared certain that a 30-year renewed license was forthcoming. In an initial study, FERC said if Edwards Manufacturing installed state-of-art fish ladders, the dam could stay.

But Edwards had a diverse group of detractors—including the National Resources Council of Maine, American Rivers, Atlantic Salmon Federation, National Marine Fisheries Service, and Trout Unlimited as well as individual citizens—who began banding together in the late 1980s. Many were from conservation groups who had spearheaded the efforts to clean up the Kennebec's water—and who saw no reason to quit at just one environmental hurdle. Others were anglers who wanted a restored fishery—without the dam, the 57 miles from the Atlantic to the next dam upstream would be “the longest stretch of anadromous fish spawning habitat north of the Hudson River” (Environmental News Network). Eventually, in 1991, they organized themselves under a common name, the Kennebec Coalition, and began lobbying and protesting FERC, Maine's state government, and the city of Augusta, where the dam is located.

And ultimately, the Kennebec Coalition had an ally in FERC, which in its draft and final Environmental Impact Statements took a good, hard look at the timber and stone dam as demanded by the aforementioned 1986 amendments to the Federal Power Act. Of course, the agency considered hydropower needs first, but it found that Edwards's power could be easily replaced by the ten other dams on the Kennebec and the myriad dams on other Maine rivers—that is, replaced *if necessary*, for currently there is a surplus of power in the region. FERC also noted the species of fish that would have access to an additional 17 miles of spawning habitat, a special perk for the four species that will not use fish ladders. Ever keen to any kind of economic boon, FERC supported future

wetland habitat restoration and recreational boating and fishing development, on which the community is certainly depending, too. And, finally, in both the EIS and in its official decision, FERC declared that removing the dam offered no “major environmental or social drawbacks,” a simple statement that stands in stark comparison to the previous 162 years of profound environmental damage.

The final EIS was issued in July 1997, and it for the most part predicted the November ruling. Still, hearing in November that the license was denied was sweet music to the ears of the numerous supporters, which by that time included the Governor of Maine, the Maine Departments of Marine Resources and of Inland Fisheries and Wildlife, the State Planning Office, the U.S. Department of the Interior, the Environmental Protection Agency, the Kennebec Coalition, and other environmental organizations (FERC 1997). Of course, FERC tried to downplay the decision by emphasizing its development-minded approach; Commission Chairman James J. Hoecker cautioned, “Hydroelectric power will remain a valuable part of the nation’s energy mix, especially in light of its implications for clean air.”

Such a promise was not good enough for Edwards Manufacturing, which promptly threatened litigation. In December 1997, the company made good on its vow and appealed the FERC decision ([www.enn.com](http://www.enn.com)). The owners not only questioned FERC’s authority to insist the dam be removed, but also refused to bankroll the removal. The former notion is almost laughable, since FERC might have previously been inclined to agree. Despite the 1986 amendment, FERC didn’t acknowledge its own power to deny a license to an existing dam until a 1994 internal Policy Statement—for once the agency seemed uncertain about its own authority. And when the five-member panel of FERC

commissioners voted on Edwards, one member voted no, arguing such a decision was not within the agency's domain.

As for funding the removal, Edwards Manufacturing's response was unsurprising, particularly after its years of easy money, although the \$11 million estimated price-tag for removal is less than the \$17 million it would cost the company for fish ladders.

Ironically, even with a new license, the lucrative profits would have ceased regardless: Central Maine Power had no intention of renewing the economically-beneficial contract, which would have left Edwards without a buyer for its power (Power Economics 1998).

Happily, however, the litigation was halted by a unique arrangement between hydropower and conservation groups—an “uneasy truce,” one writer called it. On May 26, 1998, several organizations and companies contractually agreed to and Secretary of Interior Bruce Babbitt signed the “Lower Kennebec River Comprehensive Hydropower Settlement Accord.” The Accord not only defines how and from where resources for decommissioning will be provided, but also secures support from Edwards Manufacturing, which subsequently dropped its suit. According to the pact, no taxpayer dollars will be spent on the project (Arizona Republic). Instead, the Kennebec Hydroelectric Developers Group, a coalition of seven upstream dams, promised the largest contribution, \$4.75 million, in exchange for an extended 16-year deadline for fish ladder installation (Howe). Previously, the dam owners were compelled to install fish ladders by 2001.

Funding for the removal and restoration, which is estimated at \$11 million, also came from shipbuilder Bath Iron Works, which anted up \$2.5 million in exchange for a 17-acre expansion downstream. The National Wildlife Federation committed \$1.5 million, and

Edwards Manufacturing agreed to a comparatively paltry \$100,000, although that money will go directly to the city of Augusta, which owns three percent of the dam, for redevelopment plans and the loss of tax revenue from hydroelectric sales (Howe).

There is danger in such an Accord, however. Future dam owners, denied a renewed license by FERC, may expect a similar outcome—one that absolves them of nearly all financial responsibility. Trade-offs may be made that undermine the efficacy of a dam's removal, or conservation groups and tax-payers may have to fund the burden instead. Nuclear power owners are required to set aside funds for the eventual decommissioning of reactors; perhaps a similar requirement should be enacted before FERC can renew a dam license. It might reduce the petulant responses from dam owners who should be more than satisfied with almost two centuries of profits, or it might encourage owners to take down their dams before they need to be relicensed—to get out while they're ahead. Certainly owners must bear some responsibility for the environmental effects their dams have caused.

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So now we're to the logistics. No Senator's blocking the goal—the removal effort has begun. In 1998, Edwards was taken off the regional power grid, and on New Year's Day 1999, "steel plates were lowered to shut off water supply that powered turbines" (Boston Globe 1999). Also on January 1, the state of Maine assumed the ownership of Edwards Dam from Edwards Manufacturing and the city of Augusta, ending Edwards Manufacturing's relationship with the archaic structure (DOI). At the same time, the city of Augusta also relinquished any lands it owned connected to or inundated by the dam, including the 1000-acre reservoir.

On March 1, 1999, the Army Corps of Engineers issued a special permit for removing the dam, the last federal permit required for the decommissioning. Later this year, definitely after July 1 (in order to “minimize impacts to fisheries”), the state will begin dismantling Edwards, no easy task, but one made easier by a 1974 breach (Cheever 1999). For six months in that year, most of the silt that had accumulated for the previous century and a half washed away as the gates were opened. When considering the removal of a dam, the accumulation of silt, gravel, or worse is frequently the first concern, particularly if heavy metals have been concentrated behind the dam’s wall. Because of this breach, researchers optimistically predict a relatively easy removal. Gradually, as in 1974, the water table will be lowered as the timber structure is breached in one spot. The rest of the removal is planned in stages, working top-down, as pieces of the dam are removed, one at a time. After the dam’s gone, a river-front park will be developed in anticipation of increased recreation, especially fishing, and ownership will revert to the city of Augusta again.

From there, the sky’s the limit. The newly planted trees and shrubs will blossom, and merchants will move closer to the waterfront. The park will become everyone’s favorite place to have a picnic. Anglers will come from all over the country and take their fish stories home with them. Biologists will come, too, noting the fishes’ status, counting the spring spawners, and watching the river recover. River restoration and the Kennebec will become synonymous.

And as long as we’re imagining the possibilities, which really aren’t that outlandish or far-reaching, we might as well imagine that first intrepid salmon or shad or sturgeon that ventures beyond mile 40 of the Kennebec River, where the dam used to sit. It’s been



162 years since that fish's ancestors knew this stretch of water, and certainly much of the river is still blocked to this fish and others like him by upstream dams. But 17 new miles of spawning ground are now available—17 new miles of silvery alewives, shady holes, moss-covered rocks. One has to wonder if, to a fish, 17 miles isn't a whole new world.

## CHAPTER FIVE

*The Northwest salmon—  
the thread that bound the region, that pumped oceanic nutrients back on  
shore, that nourished native bellies and native cultures,  
that supported a work force of thousands,  
that defined a place ...*

**~ Alan Durning, *This Place On Earth***

In March of this year, I had the opportunity to attend the Public Interest Environmental Law Conference at the University of Oregon in Eugene. Unsurprisingly, it was another moist Oregon day, and I ducked my head into the large seminar room, anxious to get out of the rain, anxious to hear from some of the luminaries of the environmental community. For my first event of the day, I had chosen a lecture on restoring rivers by taking down dams, and as I looked around the crowded, musty room, I noticed seemingly everyone else at the conference had chosen it, too. Hot topic, indeed. The room was packed with old, young, the usual assortment of the dreadlocked and unwashed. We'd all come to hear the latest developments in decommissioning-activism. We'd all come to hear David Brower speak.

The former executive director and current board member of the Sierra Club was using the forum as a consciousness-raising rally for draining the reservoir behind Glen Canyon, or at least that's what I gleaned from the conference brochure. Brower was scheduled to speak last after a line of representatives from various organizations, including the International Rivers Network and the Glen Canyon Institute, and after a viewing of a film he made in the 1950s about Hetch Hetchy Dam. I sat and listened to the presentations, which started off with chirpy summations of dam removal—"It's really taking off!"—that sounded like advertisements for hula-hoops. I took notes. I learned a new verb: *re-wild*. I heard that the Sierra Club was responsible for the Elwha restoration efforts. I waited for an explanation on how Glen Canyon Dam's "tremendous value as a symbol" could further the decommissioning of other dams. I nodded when David Orr, of GCI, thoughtfully noted that dam removal, as an idea and an action, "grow[s] because people have a memory."

If I'd hoped to find something new about dam removal efforts, I was disappointed but not disturbed. I had done, after all, a good deal of research on my own, and besides, the forum wasn't that of an intensive class, but instead of a quick lecture, an infomercial, really. So I could sit back to listen without expecting too much substance. But as the lectures progressed, I became conscious of something else in the speeches, something decidedly disturbing and disquieting and unexpected: the rhetoric of war. These people had declared a war, an us versus them "battle" in which *we*—right-thinking environmentalists—must retrieve all the "weapons in our war-chest" in order to defeat the "Rush Limbaughs floating in their house-boats on Lake Powell." "We in the environmental movement" alone could bring down dams, and "it's up to [us]" to fight detractors with legal and possibly even illegal means.

After about 45 minutes of this, I began to wonder who, exactly, "us" and "them" were. I lived in the Phoenix area for seven years. I know there are more registered boats per capita in sand-scraped, land-locked Arizona than in any other state. I know dozens of people who love driving up to Lake Powell, and none bears any ideological resemblance to Rush Limbaugh, who, as far as I know, doesn't even own a house-boat. When Arizonans—or tourists from other states—visit the reservoir, they look forward to getting a tan, drinking a few beers, water-skiing. They are not thinking about the ecological consequences of their actions, nor, typically, are they pondering the ecological events that made the reservoir possible. That the lake is not a lake and shouldn't be there does not occur to them; perhaps many don't even fully realize the lake only exists because of the dam: they take the beauty at face value and don't bother to intellectualize the sandstone

and concrete, preferring instead to languish in the oasis, a blessing on a sweaty, summer day.

The question is, then, does this make them the enemy? Because they appreciate the dam, appreciate that incongruous sea, should we have them fixed in our scopes and targeted in our environmental organizational plans as a deserved punishment? And with such an assertion do we include stereotypes about their ideological orientation or worse? Perhaps many reservoir-revelers are conflicted about the dam; most others are just oblivious. Oblivion can be a dangerous trait in many circumstances, but in this instance, it's not reason enough to self-righteously, irresponsibly skewer those who in many cases are our co-workers, our neighbors, our friends. Instead, it's an opportunity to talk to people, show them *our* perspective. More importantly, the danger in using such language, declaring such battles, is that our perceived enemy may do well to live up to our prophecy. That is, if we place them in that role, establish them as our adversary, then that's what they'll be. They'll fight us every inch of the way.

Maybe the goal is to intercept such battles before they begin by never placing one faction in white hats, another in black. Maybe that's why in the examples of dam decommissioning projects discussed here, we see, for the most part, fewer lines drawn in the sand and more decisions made. Neither the Elwha nor Edwards projects have been wholly harmonious, and each is marked by its share of litigation and disagreement, but ultimately, different groups have worked together toward a common goal—indeed, these groups have worked together just to find that common goal, for certainly in the beginning all did not want the same thing. The Edwards Dam is due to come down this summer because hubris, attitude, and, to put it bluntly, greed were shelved in favor of cooperation.

The Elwha Dam is a model for grass-roots activism joining with top-down decision-making. Without these aspects, probably neither dam would be so close to falling.

Of course, there are several other aspects and conditions of each project to highlight, and I shall do so subsequently, but while we discuss the factors that most likely made such success possible, it's important to stress this component of collaboration. Each project is very different: the dam owner in Washington has supported removal for seven years; the owner in Maine sought a renewed, expanded operating license. On the Elwha, Congress ultimately made the decision by drafting legislation and mobilizing agency support. On the Kennebec, an independent agency acted alone based on its interpretation of a decade-old law—an interpretation Congress may have not even intended. Yet for all of the differences, on each river there existed shared stakeholder cooperation, which ultimately sealed the projects' viability and feasibility. Perhaps we can safely say that neither project would be worth talking about had that component not been present, or, going one step further, that other projects cannot proceed without at least some sort of compatibility or tolerance among the participants.

In none of the interviews I've conducted with activists in Washington and Maine have I found overt references to us-and-them mentalities among the stakeholders. In the Elwha Citizens' Advisory Committee's published report, members admit the issue had been "contentious," but they stress that endless lawsuits and on-going feuds weren't making anyone happy. Obviously, in the beginning, factions were divided, perhaps even deeply, as they were in Maine. In 1980, if FERC had held out an olive branch to the Lower Klallam nation, or vice versa, the gesture would probably have been ignored. Similarly, even as

late as 1997, Edwards Manufacturing's words and actions did not suggest a compromise would come so quickly or simply.

At some point, however, maybe even at a couple of points, the various actors came together to try to find a solution based on science, not legal rulings. In Maine, the first step was in 1989, when the Kennebec Coalition was founded. Not only did this umbrella-group of organizations and interests work efficiently well, but it also helped broker the multi-faceted Accord between Edwards Manufacturing, the city of Augusta, and hydropower and conservation groups. This show of solidarity might have inspired FERC, which in the early 1990s began working with the National Marine Fisheries Society, state and fish and wildlife agencies, and the Department of Interior as it weighed whether or not Edwards deserved a new license. The "renegade agency," as it has often been called, was finally cooperating with other agencies, a far cry from previous cases, when FERC was content with studies and facts provided by dam owners. Perhaps cohesion among some participants perpetuated further cohesion.

On the Elwha, the number of participants is even greater, and the dam's been proposed for removal for a lot longer. Rivalries have had plenty of time to fester and grow, and yet somehow, all the players but one agreed to take down the dams. Partisanship was set aside in order to look at the facts, find the funding, do the math. If nothing else, removing the dams became a business deal done by businesspeople. I doubt many people from different factions came out of this two-decade debate fast friends, but friendship was never and isn't the point. Respect for your neighbors, respect for your landscape, and, above all, making something happen—these are the themes from the Elwha participants. The Elwha Citizens' Advisory Committee's report says it best: "A

supremely tragic outcome would be for these stocks of fish to become extinct while we debate the wisdom and feasibility of dam removal” (1996).

On a somewhat different note, there’s Senator Gorton, who recently squared off with Bruce Babbitt, neither man willing to budge. While Gorton has considerable power, I’m not convinced he’s anything other than a political actor in the Elwha drama—far removed from the actual project and in disagreement with virtually everyone significant. True, he does have regular contact with the dam owners, and a representative from James River speaks highly of him, but Gorton’s agenda encompasses something far greater than the Elwha project: the Lower Snake dams. Ultimately, it’s not the Elwha dams on which Gorton is unwilling to play ball, but the Columbia-Snake dams. Hopefully, with the recent listings of Northwest salmon under the Endangered Species Act, Gorton will follow the lead of Edward J. Manufacturing, who had a similar opportunity to stymie progress, but who instead cut a deal.

Just as it’s difficult to talk about collaboration and cooperation without some sort of touchy-feely atmosphere seeping in, it’s also difficult to discuss decision-making through conflict resolution without resorting to negativity toward the federal government. Thomas Jefferson cautioned, “Were we directed from Washington when to sow and when to reap, we should soon want bread.” This attitude hasn’t changed much since Jefferson’s era, and most contemporary literature echoes this skepticism for Washington’s invasive presence and misguided actions. Indeed, it’s been doubted, by Jefferson and others, that Washington can even understand such a diverse landscape, and if the government can’t understand it, then how can it govern it? How can it make decisions about what happens thousands of miles away? These two decommissioning projects defy this stereotype. The



Elwha removal was made possible by Congressional legislation and presidential pen, and the Edwards project came about by a re-interpreted Congressional law. Both decisions were propelled by the hard work from several different state and federal agencies.

Collaboration on all levels, not just locally-based, could very well be key to the process, even when we're discussing private dams. Nothing happens in a vacuum: private or not, the Glines Canyon Dam is in Olympic National Park—surely the nation has a say about one of its parks, just as Virginia anglers enrolled in Trout Unlimited have had plenty to say about fish populations in Maine.

I don't want to dwell too much on this, for there are other factors to consider, but first let me repeat this, a lucid observation from former mayor of Missoula Dan Kemmis: "If all you want to do is be right, you can be right and not get anything done." These projects are about getting something done, taking down dams that for their relatively small size exert a major influence on their host rivers. Conservation groups in Maine could have easily crossed their arms over the chests and petulantly declared unconditional righteousness; instead, they figured out what push the Edwards project needed—ultimately, monetary support—and they ceded that condition. In Washington, Senator Gorton is certain he's right, but his certainty isn't lessening the push to remove the dams; it's a road block, and dam supporters have shown and continue to show considerable flexibility to get the job done. They are not content to merely think *they're* right. They want action. They want their river back.

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What else can the Elwha and Edwards cases teach us? What else can we apply to other dams considered for removal? What stands out immediately is the inclusion of varied

stakeholders, and this is slightly different than the example of collaborative decision-making. As the concept of removal was discussed, no one was left out—native groups, city representatives, conservation organizations, individual farmers, state and federal governments . . . at times, it must have seemed as though there were too many people voicing an opinion, too many cooks in the kitchen. From initial lawsuits to public comment on Environmental Impact Statements to citizens' forums, people had a stake and a say in the decision to remove the dams.

(More than just private citizens and citizens' groups, however, a lot of government agencies were involved: National Marine Fisheries Service, Fish and Wildlife Service, National Park Service, Army Corps of Engineers, Bureau of Indian Affairs, FERC, and countless state, county, and municipal groups. I don't know if any blanket statement about decommissioning can be made here—if, in fact, the inclusion of a variety of agencies guarantees better science and holistic decision-making. But it is interesting that despite the hackneyed jokes about bureaucracy, important fisheries work is being accomplished with our tax dollars.)

Ultimately, the Federal Energy Regulatory Commission made the decision in Maine, and the U.S. Congress determined the course in Washington, but events leading up to and following these two decrees have shown that one entity's will is not enough. Our lives and goals are too interconnected, and there are checks and balances and avenues for dissent. By including people who might potentially have cause to disagree, the results are reinforced by sheer diversity and founded on the wills of many.

On a more systemic level, we can see the powerful role of federal agencies, especially the Federal Energy Regulatory Commission. Two of the three dams held expiring licenses

from FERC, just like so many other dams in the country. The need for renewed licenses spurred detailed evaluation of the Glines Canyon and Edwards Dams' pros and cons as mandated by the 1986 Energy Consumers Protection Act, which quite specifically demands that fish populations and river ecosystems be given equal footing with hydropower and economics before a dam can be relicensed. If, before the 1986 law, the two dams had been renewed for another 30 or 50 years, conservationists wouldn't have had the opportunity to object to new licenses for at least another human generation and six to nine salmon generations.

As more and more of these licenses expire, and as more and more of our thousands of dams age, FERC will be forced to once again go through the necessarily long process of determining the future of those dams, and making that determination based on the dams' merit. At least with private dams, unlike federal dams, we get the occasional but guaranteed opportunities to evaluate a dam's benefits or lack thereof, and so it's safe to say that most of the dams that are demolished in the near future will be private dams (which is also due, quite simply, to the far greater number of privately-owned dams). Economics, hydropower, ecology, and community are all equal under the 1986 Consumer Protection Act and other laws, and they will need to be treated accordingly.

For other dams undergoing the FERC process, relicensing will come down to these four factors. But as far as denied applications are concerned, uncertainty about FERC's power still exists: yes, FERC can deny a dam's license, but can it therefore say the dam must be removed? The law doesn't spell this out, and one member of FERC's five-person board thinks that ordering removal is abuse of power. Which would mean, then, that FERC must hover in an almost-existential netherland, unable to remove and unwilling to

approve. Because a settlement was reached in Maine, this argument never made it to court, and though the Supreme Court's history with the regulatory agency suggests it would reinforce the power to demand removal, Edwards Manufacturing still hoped otherwise. Some conservationists in Maine, though thrilled with the Accord, were primed for a legal decision, which, they believed, would come out in their favor and end any uncertainty once and for all. Before long, as FERC moves through its depressingly large backlog of dams up for renewals, this question will likely be answered soon.

On the subject of settlement, both projects may set a dangerous precedent. The Elwha removal is to be funded by Congress, and if the federal government is willing to foot the bill this time, perhaps it will be similarly willing again. On the Kennebec, the dam's owners are responsible for only \$100,000 of the costs. Yes, they lose the revenue from electricity and property, but they are also at least partly responsible for a century and a half of river degradation. Should they therefore bear some responsibility, financial or otherwise? What incentives are there for dam owners who are denied licenses or who are simply tired of maintaining an older dam to responsibly oversee that dam's destruction? Certainly these are problems that can only be resolved through a few more test cases—we are treading on new ground here. But if dams cause an impact comparable to that of a nuclear power plant, it's not unreasonable for dam owners to follow the route of nuclear plant owners—that is, setting aside money for the eventual decommissioning.

The larger issue, of course, is an economic argument. These restoration efforts will not be cheap, particularly on the Elwha, but, in pure dollars and cents, they make more sense than trying to upgrade or improve the dams (which often doesn't have the intended effect). Since 1985, \$3 billion has been spent in the Pacific Northwest to improve salmon

runs, with negligible results. In light of the nine runs of salmon listed recently under the ESA, another \$100 million is set aside in next year's federal budget for salmon population restoration. So much money is being spent on hatcheries and fish ladders and other mitigation options, and yet the populations are still dying away. While this may be premature to say, the listing has been a wake-up call in the Pacific Northwest, especially as a good portion of critical habitat falls within urban areas, a first for ESA listings.

Already, two dams in the Portland metropolitan area are being removed, and others will soon follow as people agree lower electricity bills do not justify the death of the last wild salmon.

On the three dams focused on in this paper, the loss of hydropower is comparatively small, easily made up for, and destined to be replaced by other municipal or recreational projects. On the Kennebec, the city of Augusta is planning a riverfront park and community center, which will inject the local economy with lasting benefits and still more jobs. The river is already a landing spot for sea planes, and a sea plane marina is being proposed. The restoration of the river, the staffing of the community center, the building of the marina: all will provide jobs, just as an improved fishery will provide commercial and recreational fishing jobs. Although the lands surrounding the Elwha dams will not be as fully developed, the tourist and fisheries income is estimated to be well worth the money spent to demolish the dams, especially since biologists have been optimistic about fish recovery. Much of the river is in Olympic National Park, and the water's condition is very good—the dams are the only obstacle to an improved fishery.

And that's the ultimate goal: an improved fishery. Yes, the tourist and recreation dollars are needed and wanted, but salmon are more than just money in the bank. Many

biologists liken them to the canary in the coal mine—when the fish are healthy, the river and surrounding ecosystem is healthy. Each spring, when adult salmon enter rivers from the ocean, they are traveling to their deaths—if they make it past the dams, they will return to their places of birth, spawn, and die. But in this death is life: female salmon will lay 2,000 to 6,000 eggs, which, if the turbines don't get them, will travel down the river and into the ocean. And the dying parents, the salmon who have reproduced this progeny, will decay, feeding their own energy and nutrients to the river, forests, groundwater, and other wildlife, all of which certainly need the sustenance. Indeed, the timber company Weyerhaeuser, after studying this loss of nutrients, has resorted to dumping salmon hatchery carcasses on its timber stands as a replacement for the energy that once naturally entered the forest from the river (The Idaho Statesman 1997).

Biologically *and* economically the salmon's importance cannot be stressed enough. But there remains another factor, the impetus for the Lower Klallam's insistence that the Elwha and Glines Canyon Dams be removed: the salmon's profound cultural significance—a significance that transcends different cultures. If you've ever talked with a fisherman—and I'm deliberately using the masculine word because I don't seem to know any fisherwomen—you'll notice that eventually the conversation will roll around to sea-run fish. There's something to be said for the respect in a man's eyes when he talks about a fish that somehow knows, just *knows*, when to swim toward the saltwater, or when to head for the springs—and not just any side stream, but a specific stream, a stream visited by his ancestors for millions of lifetimes. No, this isn't quantifiable or scientific or even possibly admitted except in close company, but respect for a species may well translate into protecting that species, restoring its habitat. Lots of dams have been taken down on

interior rivers too far removed from the oceans to host anadromous fish, but in these cases, like the Milwaukee River's Woolen Mills Dam or the AuSable River's Sailing Dam, removal was necessary because of a threat to human safety—the dams were dangerous. period. Nobody was clamoring on behalf of the fish.

Now, with the Elwha and Edwards, the four dams in Idaho, the many other dams on the Columbia River system, people *are* clamoring for fish. Anadromous fish, in fact, are the number one reason the dams are being removed, just as they were the primary reason for the removal of the Quaker Neck Dam in North Carolina—where 75 miles of the Neuse River was opened to striped bass, American shad, hickory shad, and shortnosed sturgeon—and the Western Canal Dam in California, which was removed strictly for chinook migration (McManus 1998). Salmon made the decision in Port Angeles: “Strictly from a fish/ecosystem restoration perspective, the Committee believes that the case for dam removal is compelling” (ECAC 1996). And salmon made the decision in Maine:

There are plenty of reasons to take down dams on interior rivers—safety, economics, environmental concerns—but lagging populations of anadromous fish seems to be the strongest reason on sea-feeding rivers. This is not to say that any and every dam that blocks salmon migration is due for removal, but it does suggest that people will begin to look at dams like Grand Coulee and Bonneville or, more immediately, the four dams on the Lower Snake River, a little differently, and maybe someday, the idea of taking out a dam that large on behalf of another species might not seem so strange.

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Finally, we return to Congressman Williams's “American mood,” a slippery description not easily applied to 260 million people, but one important all the same. In all this

discussion about FERC and ecology and economics, this simple fact remains: our ideas about nature and rivers have changed and are changing still. Despite our booming economy and rampant consumerism, despite our dependence on cars and technology and prepackaged lifestyles—or perhaps because of these things—we are becoming increasingly dependent on an ideology that demands room and respect for the natural world. This does not mean a mass exchange of cars for bicycles or a country-wide evaluation of our consumption-based daily lives—no, we're not ready ~~or not~~<sup>to</sup> to make changes that substantial in the way we live. What it means—what I think it means—is that more Americans are receptive to protecting and restoring our natural resources. We lose acres of open space by the hour, so we must preserve or improve our rivers, mountains, prairies, and other places of scenic beauty and biologic diversity.

From a more selfish standpoint, we're increasingly willing to accept, even celebrate, something in its natural state if that something benefits us in one way or another. A consumer-based example might be the current fad of herbal supplements, herbal teas, herbal *everything*. They're natural, they're good for us (or so we believe), they make us feel good. And so they're flying off the shelves and into our bloodstreams, and we think we are better for it. A free-flowing river might fill the same purpose. It remains a powerful and romantic symbol of wilderness, of wildness, and of a pristine landscape significant in and of itself—all of which are as rare as jewels. And when we can witness water tumbling over rocks and through canyons, listen to the roars and drips and gushes, we are calmed and inspired. In that moment by the river, we get something back—beauty, peace, humility perhaps, as well cleaner water, healthier riverbanks, improved fish populations.



A dam doesn't merely stop a river's flow: it kills everything about a river that touches the human spirit. We might be able to connect to the power the dam provides or enjoy the fruits and vegetables grown on the reservoir's water supply, but we can no longer connect to the river itself. Even on reservoirs like Lake Powell, veritable playgrounds, true wildness eludes us—Bill McKibben says it better: “Environmentally sound is not the same as natural.” In a world increasingly hostile to nature, opportunities for such a connection are infrequent and invaluable—in our strip mall, subdivided world, opportunities for loving and enjoying something untamed are addictive.

The question is, then, is all of this enough to propel the removal of other dams? My immediate response is no, because I am talking here not about all Americans, but about some. Maybe even more each year. But fewer than the millions that adore Lake Powell and cheap power and that simply don't care about fish or water quality or beach erosion. And then I change my mind: people can't argue against science and nourishment, we can't fight the fact that many dams will just be too old and too expensive and too dangerous to maintain. We will meet the challenges of the recent listings under the Endangered Species Act, and we will better manage and utilize our current power and water resources so that the loss of dams is barely felt. And we will rely on, perhaps more than the protein in fish or the nutrients in water, our symbols of freedom and our literal wildernesses—they're as necessary as air. As for new dams, from Marc Reisner to the Bureau of Reclamation to even Floyd Dominy, everyone seems to agree that the big dam-building age is dead, at least in America, and not likely to be revived since neither location nor money nor true need is available.

For now, we come to terms with the dams we have, which are more than enough. Perhaps soon, a majority will demand a re-evaluation of what amounts to simply too many dams on too many rivers, and communities will do everything in their power to renew their riparian areas and sustain their wildlife. Perhaps the movement will really explode after Edwards is removed in the summer of 1999, or after the Elwha is removed hopefully not too long after. And the removal of small dams will lead to the removal of bigger dams, maybe even the four from the Lower Snake. And after that ... I don't think Glen Canyon Dam will come down in my lifetime, but I do think that Americans have fundamentally changed since the final Lower Snake dam was finished in 1975. In just 20 years, we've come to the point where we can discuss the removal of dams without fear of being labeled anarchists or communists or worse. Who knows what the next 20 years will hold? Who knows how this story will end?

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