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Same River Twice: Restoration Politics, Water Policy, and Dam Removal

A dissertation submitted in partial satisfaction
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Environmental Studies

by

Peter Kimball Brewitt

June 2014

The Dissertation of
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Abstract

"Same River Twice: Restoration Politics, Water Policy, and Dam Removal."

by

Peter Kimball Brewitt

Dam removal is a new and rapidly growing phenomenon that is reshaping watersheds across the United States; nearly 600 dams were removed from American rivers 1999-2012. Dam removal restores natural flows of water, material, and wildlife upstream, downstream, and out across the floodplain. Despite this massive restorative impact, it is politically controversial, reshaping familiar landscapes and challenging traditional economies and the communities that depended upon them. American dams are aging – 85% of them will be past their useful lives by 2020 – and it is likely that many more will be removed in the future. In this work, I examine the politics of dam removal as well as its impacts on rivers, performing case studies of three major dam removals in one of the United States' removal hotspots, the West Coast. The primary restoration target in this region is populations of Pacific salmon and sea-going trout (genus *Oncorhynchus*), which were historically enormous but are now largely endangered.

The 47-foot¹ Marmot Dam was removed from Oregon's Sandy River in 2007, the 39-foot Savage Rapids Dam came out of Oregon's Rogue River in 2009, and the Elwha/Glines Canyon complex, 105 and 210 feet tall, started to be removed from the Elwha River, Washington, in 2011. Each of these dams was functional and economically productive when it was removed. I analyzed the political frames, venue shopping, and advocacy coalition dynamics of each case. In each case, the most challenging political frame was the cultural role of the dam and reservoir, which had long provided ancillary recreational and scenic benefits to the public – the community saw the artificial lake as their natural landscape. The policy subsystem governing dam removal is broad and evolving, so stakeholders found useful political venues in many places. Ultimately, it was necessary for each group of stakeholders to form a mega-coalition, wherein nearly every interest group worked together to seek a united solution. It was necessary to go to the federal government or to create new inclusive venues to accomplish this and to fund the dam removal. In the cases of the Savage Rapids and Elwha Dams, the political process took decades and was challenged by many bitter clashes between stakeholders. In the case of the Marmot Removal, an efficient and amicable solution was reached in less than five years, setting an example for future dam removal project.

¹ I use imperial units because the policies and rhetoric guiding dam removal in the United States are in feet and miles. I use metric units in my chapter on ecological restoration, befitting the scientific nature of that line of inquiry.

There have been dozens of dam removals on the West Coast, costing many millions of dollars, but there has been scanty attention paid to their effectiveness for restoring salmonid populations. I assessed these removals' effectiveness in restoring these fishes' access to upstream habitat, and found that while formerly-excluded salmonids do recolonize upstream habitat in most cases, there has been little consistent monitoring of these projects. Monitoring is particularly problematic for dams that provided upstream passage prior to removal – such cases require baseline data to assess the effectiveness of dam removal, but baselines are rarely established, and in most of these cases success is impossible to prove.

In the future, scholars should focus upon the politics of dams' ancillary effects and the venues that allow for success despite diverse stakeholder groups. Political stakeholders should adopt conciliatory approaches, particularly toward elements of the local community that may have no tangible or legally actionable connection to the dam. Managers should establish structured monitoring to provide baselines from which to assess future removal projects.

Dedication

Dedicated to my future child, who holds all my hopes for the future, who will live, I believe, in an age of restoration, and without whom this work would not have been completed nearly as quickly.

Acknowledgements

This dissertation is about people, and I owe thanks to many, many of them. I must begin by thanking my dissertation committee, Daniel Press, Karen Holl, and Zdravka Tzankova, for their advice, insights and mentoring throughout this process. Despite having, presumably, their own lives and commitments, they have always been there when I needed them.

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In the field, my work relied utterly on the kindness of hundreds of biologists, environmentalists, watershed managers, politicians, irrigators, journalists, historians, and conspiracy theorists, nearly all of whom shared their data and stories with an unknown graduate student from Santa Cruz. I want to specifically mention Bob Hunter of Waterwatch, Dan Shepard of Grants Pass Irrigation District, and John Esler and Dave Heintzman of Portland General Electric, but many other people were extremely helpful and went out of their way on my behalf. Their names are listed in my interview sections and in the footnotes of Appendix B.

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Chapter 1: Dam Removal on the American West Coast

Introduction

In the summer of 2007, 47-foot Marmot Dam disappeared from Oregon's Sandy River. Two years later, 250 miles to the south, 39-foot Savage Rapids Dam crumbled and the Rogue River flowed through for the first time in nearly a century. Three years after that, in the winter of 2012, 105-foot Elwha Dam vanished, opening the Elwha River for the first time since before World War One. Its mate five miles upstream, the 210-foot Glines Canyon Dam, is (as of this writing) a 20-foot nubbin. It will be gone, barring unforeseen circumstances, before the end of 2014. Fish are swimming up and kayakers are floating down reaches that were formerly impeded by earthworks and concrete, and native plants are blooming where reservoirs were before. Rivers and watersheds are being remade. How could this happen?

The removal of these dams, and hundreds more across the United States, signals a new era in river management and ecological restoration. A dam removal is a dramatic and powerful restorative action, re-establishing natural flows of water, material, and wildlife upstream, downstream, and out into a river's floodplain. But dam removal is a novel and growing phenomenon – there were only 19 removals before 1980, 132 in the 1980s and 90s (Pohl, 2002), and since 1999 there have been an estimated 600 (AR, 2013) These removals are a drop in the river compared to the total number of American dams – the Army Corps of Engineers (USACE) have inventoried 87,359

major dams – but the increase in removals is both a massive change for individual rivers and a potent signifier for the future of watershed management across the United States.

Dam removal is a new item on the environmental agenda, and as such, it is not yet well understood. Advocates involved in dam removal, and indeed in all ecological restoration, enter a political and policy wilderness. There are few policies guiding restoration actions and there is little experience upon which advocates might build. In the absence of policy, there is sure to be politics. The dramatic increase in dam removal during the 21st century is unlikely to slow, and the precedents set in the early days of dam removal, on rivers like the Rogue, Sandy, and Elwha, may set the course for many more removals in the future. There are an estimated 2.5 million dams in the rivers of the United States (National Research Council, 1992), and 85% of them will be past their useful lives by 2020 (Doyle, Harbor, & Stanley, 2003). As dams' services dwindle and their environmental impacts grow, dam removal debates will only increase.

Background

Dam removal is, at its heart, an issue of river management, and rivers (and their fish) are classic common pool resources in the Hardin and Ostrom sense (Hardin, 1968; Ostrom, 1990). Ostrom notes that these particular commons – rivers and fisheries – are especially difficult to manage due to their inherently dynamic nature. In the

United States, surface waters belong to the states, and rights to use them are apportioned according to riparian or prior appropriation systems. Which system is used depends on the state. In the arid West, prior appropriation is typical; the humid east has sufficient rainfall and surface water to retain the doctrine of riparian rights, which springs from English common law. Prior appropriation applies even in wet regions of western states, such as western Washington and Oregon. Users must demonstrate beneficial use, which did not include environmental quality for many decades. In the later 20th century, the definition of beneficial use was expanded to include ecological purposes that kept flows in-stream (Hundley, 2001).

The politics of dams begin with the tension between public and private resources. As Pittock and Hartmann note, dam owners are granted exclusive rights to use a public resource (Pittock & Hartmann, 2011). American dams are generally private – only a third of major (> 6 ft. in height) dams are owned by any kind of public entity (USACE, 2014). It is likely that the overwhelming majority of minor dams are privately owned as well – the resources of the state are not likely to be required for a three-foot dam. Legally, dams' uses are considered to be beneficial, and are a routine part of water law. But as they divert, slow, and alter the state's waters, dams affect downstream users and people in the area of the dam as well as the watershed's ecology, bringing politics to the landscape.

Dams alter riparian ecosystems. This has been known since at least 1215, when there were so many fish weirs in English rivers that their removal was mandated in the Magna Carta – perhaps the first case of dam removal politics (Helmholz, 1999). Their impacts became increasingly clear as technology and scale increased and transformed fisheries, valleys, and the rest of the riparian landscape. Unsurprisingly, dams have been targeted by the environmental movement since the early 20th century, when John Muir and the Sierra Club struggled over the damming of Hetch Hetchy Valley in Yosemite National Park. Several of the environmental movement's signal triumphs have come in debates over Colorado River dam projects at Echo Park and the Grand Canyon. Even a famous environmentalist failure, at Glen Canyon, helped to galvanize and motivate environmentalists. At the present moment in American history, it would be politically difficult – perhaps impossible – to build another Glen Canyon Dam.

However, once a dam is built, environmental and fishery advocates cannot readily un-build it. Environmental policies, particularly ecologically-driven policies, tend to invoke negative rather than positive authority – they are intended to stop, limit, or mitigate negative actions rather than mandate positive actions (Press, 1994). This essentially defensive stance has served the environmental movement well during the second half of the 20th century, as the major laws governing the American environment – the Clean Water Act, the Clean Air Act, the Endangered Species Act, and others – limited pollution, take and so on, more or less as intended, and enjoyed marked (though controversial) successes. The protective structure of environmental

policies is not surprising – politically and economically, preventing loss is easier than creating new value, and a thing already possessed is held to be more valuable than attaining that same thing new (Light & Higgs, 1996). Having spent decades defending rivers, the environmental movement and its allies have few offensive options.

Many laws govern the construction and operation of dams, but when those dams are no longer economically productive, it is easy for owners to walk away, as if leaving a broken-down car blocking a public highway. Most dams are lightly regulated, with no public body responsible for overseeing their industry. The exception is hydroelectric dams, which are licensed by the Department of Energy's (USDOE) Federal Energy Regulatory Commission (FERC). However, only 2.6% of the structures on the USACE's National Inventory of Dams are primarily used for hydroelectricity. The most common primary use, taking in roughly one-third of major dams, is recreation (USACE 2014). There is no Federal Recreation Regulatory Commission.

This situation leaves dam removal advocates searching for political or policy levers. The FERC relicensing process is the clearest-cut opportunity for environmentalists' intervention – in 1986 the Electric Consumers Protection Act (ECPA) established equal consideration for recreational and environmental uses in licensing decisions, and in 1994 the Commission released a statement confirming that it is allowed to mandate dam removal if license conditions dictated it (DOE, 1995). Five years later, the decommissioning of the Edwards Dam in Maine's Kennebec River made this

power concrete. The Edwards removal is widely considered to have been the starting gun for the many dam removals that followed (Crane, 2009; Lowry, 2003). For these reasons, the literature on dam removal politics has emphasized hydroelectric dams (Carney, 2000; Lowry, 2003; Pejchar & Warner, 2001; Pittock & Hartmann, 2011). Even FERC relicensing, though, is not a well-defined policy pathway. Despite its legal power to do so, FERC is likely to hesitate before ordering dam removal over the objections of dam owners, who are, after all, FERC's constituents. While the licensing pathway is open, it is not well established and is heavily dependent on site-specific circumstances. The path through which a dam removal might appear on Kingdon's (1995) decision agenda remains uncertain.

The political challenges of dam removal go beyond economics and ecology. Philosophically, dam removal, indeed, all ecological restoration, implies a fundamental reconsideration of the relationship between human beings and nature (Gross, 2006; Light & Higgs, 1996). Historically, nature was at first something to be feared, then, with America's increasing mastery of the New World, something to be exploited, then, in more recent decades, something to be protected and preserved – presumably from the depredations of other people (Gross, 2008). Of course, each of these perspectives has been present throughout history to varying degrees, and they contend with one another to this day, but all share the sense of human beings as separate from and essentially antagonistic toward nature (Gross, 2008; Nash, 2001). Ecological restoration, though, casts people as vital parts of the natural order – prime

movers, in fact (Light & Higgs, 1996). This meshes closely with the 21st-century idea of the Anthropocene Era and humanity's responsibility for environmental ills (Crutzen, 2002). It also crashes headlong into older historic perspectives and the politics and policies those perspectives created, all of which remain present and powerful throughout American society (Klyza & Sousa, 2013; Layzer, 2012).

The traditional understanding of nature as something to be exploited presents a socio-political challenge to restoration advocates because restoration implies that the exploitative use prior to restoration was in some way wrong (Van Wieren, 2008).

This can prompt resistance from those who believe in or benefit from that traditional use. Van Wieren describes a five-acre plot of native tallgrass prairie that was attached to her children's school, presumably for educational purposes – she calls it “a witnessing action.” This plot, comprising 5×10^{-6} % of the historic extent of tallgrass prairie, is seen by local farmers “as a moral indictment of their way of life and work, and more generally, of the American achievement of agricultural progress.” Nothing is said of the market value that land would offer if it were planted with corn or soybeans. The issue is a cultural and philosophical one, not about what is more productive, but about what is morally right on the land.

Such attitudes are abundantly present in questions of dam removal. Over 1000 major dams were installed in American rivers every decade since 1900, peaking at nearly 20,000 in the 1960s (USACE 2014). This wholesale dam construction was driven by

a desire not just for dams' social services or economic production, but for environmental conquest, a 20th-century extension of Manifest Destiny (Babbitt, 2002; Grossman, 2002; Reisner, 1993). This perspective is borne out by the rhetoric of some of the powerful forces behind dam construction. In the 1930s, when massive dams were being built on the Columbia River, the Bonneville Power Administration hired now-legendary folk singer Woody Guthrie to compose songs glorifying the effort: now-classic tunes like "Grand Coulee Dam" and "Roll on Columbia." Thirty-four years and tens of thousands of dams later, Bureau of Reclamation (BOR) Commissioner Floyd Dominy famously said that "to have a deep blue lake, where no lake was before, seems to bring man a little closer to God" (BOR, 1965). There was intensive dam building nationwide, but this triumphalist ideology was particularly resonant in the American West, where arid conditions and rugged geography put great demands on water engineering.

Given the combination of culturally powerful dams and a paucity of precise policy weapons, the question presents itself: politically, how has this explosion of dam removals occurred? While the aging of American dams has undoubtedly helped make removal a more broadly palatable option, this is far from explanatory. A dam owner can easily abandon their dam; enough abandoned dams sit in America's waterways to give rise to the term "feral dams" among river and fishery managers (Van Dyke, personal communication). Moreover, dams were wearing out long before the era of dam removal; in 1950, the young environmental movement could have targeted

nearly 3000 dams that were at least fifty years old (USACE 2014). This indicates that, as a condition for dam removals, age may be a contributing factor, but not a sufficient one (Mahoney, 2000). The productive life of a concrete dam is reckoned to be roughly 50-100 years, whereafter the concrete begins to break down (National Research Council, 1992). The overwhelming majority of dams (~86%) are earthen dams and likely more susceptible to faster decay (USACE, 2014).

Once political negotiations get underway, however, a different question rises: how could dam removal *not* occur? Many dams are marginally productive, presenting great ecological costs (as well as safety risks) in return for scanty economic benefits. But in some such cases dam removals have undergone well-publicized controversy, faced staunch resistance, and endured multi-decade delays. Dam removal, and indeed all ecological restoration, poses different questions to and makes different demands of political stakeholders than traditional environmental issues, and these questions have not been satisfactorily answered.

The literature offers no established framework for understanding the politics of ecological restoration, though some scholars are calling for one (Baker, Eckerberg, & Zachrisson, 2013). While Lowry, Blumm, Bender, Clark, and others have made inroads, the politics of dam removal are still evolving, wide open to stakeholders – especially given the many ways in which rivers and water are governed – and are in need of more detailed analysis. Treatments in the literature so far have been relatively

brief, or have focused on particular aspects of specific removals. This has made the dam removal literature into something of a mosaic, with many tiles unplaced.

Birkland (2006) says that there are no novel problems, just novel ideas for dealing with them, but in the removal of a dam and the restoration of a river, the past is at issue as well as an uncertain future. This may not be entirely novel, but it is poorly defined. In dam removal decisions, power and the scope of conflict are fluid. Such controversies, and the fact that dam removals have not occurred everywhere, indicate that dam removal debates are driven by political actors – their values and motivations, their alliances, and their strategic and tactical decisions. Such controversies demand deep engagement and close analysis to understand how stakeholders worked through each removal's diverse set of problems. Unanswered questions that I address in this work include:

How do stakeholders understand and value a dam, and how do they express these values politically?

What alliances do stakeholders form in their effort to remove or retain a dam, and what difference do new allies make for their coalitions?

What venues do dam removal stakeholders choose in which to pursue their causes, and how effective are these choices?

What political issues are common across dam removals, and what indications might these issues offer for the future?

Case Selection

This dissertation focuses on dam removals on the American Pacific Coast. This region has been a hot spot of dam removal: the states of California, Oregon, and Washington contain 4% of the nation's dams but have accounted for 11% of its dam removals (American Rivers (AR), 2013, USACE, 2014). The region is a major generator of hydropower; the US Energy Information Administration (USEIA) lists Washington, Oregon, and California as first, second, and third, respectively, in hydroelectric generation (USEIA, 2014). At the same time, anadromous salmonids (salmon and sea-run trout, genus *Oncorhynchus*) have immense cultural importance in these states. Historically, annual returns of these fish numbered in the millions, spawning in waterways from northern Mexico to the Arctic Ocean (Augerot & Foley, 2005). Salmon, steelhead, and cutthroat trout provided sustenance for many native tribes as well as early Caucasian settlers. They remain economically significant for coastal and river communities. Regional journalist Timothy Egan sums up salmon's importance by saying, "the Pacific Northwest is simply this: wherever the salmon can get to" (Egan, 1991). These factors alone mean that dams and dam removal will remain politically salient in this region for the foreseeable future.

I investigated dam removal by performing three case studies. Case studies suffer from their narrow scope and lack of generalizability (Bennet & Elman, 2006). But when studying dam removal politics, the case study is not only the best method – it is the

only one. Dam removals are idiosyncratic, their circumstances varying tremendously depending on the river, its species, and its uses as well as the size, age, construction, and function of the dam. Moreover, dam removals are not broadly or consistently documented. The only current database of dam removals, the one kept by the environmental advocacy group American Rivers, lists only a few nonuniform details about each case. All of this makes large-N analysis of dam removal unfeasible. Two of my case studies were touched upon very lightly in the academic literature (Bender, 1997; Blumm & Erickson, 2012; Whitworth, 2001) and could not be understood before a thorough case study analysis. The third, the relatively well-known Elwha removal project, has been the subject of several studies (Crane, 2011; Lowry, 2003; Winter & Crain, 2008) but has not received the sort of analysis that I use here.

To maximize my cases' complexity and applicability, I studied the three largest functioning dams to be removed in this region: Marmot, Savage Rapids, and Elwha/Glines Canyon. Functionality is important because the restoration of a useless or abandoned dam is less politically controversial and involves fewer interest groups. Lowry identifies size as a politically important factor, increasing physical as well as political complexity (Lowry, 2003). These parameters mean that my case studies incorporate a wider array of political stakeholders and offer more potentially applicable conclusions than smaller or less productive dams. I also excluded removals that did not have anadromous salmonids from analysis. Some 90% of removals in this

region have been driven in part by the goal of restoring anadromous salmonid populations (AR, 2013). Dam removals where these fish were absent are outliers.

I approached each case with the goal of identifying important variables and generating hypotheses. I began by tracing the political processes of each dam removal from the first time the removal was suggested until the dam became a (de)construction site. My lenses for analysis are the basic structures of political debates: values expressed in political frames, stakeholder identity and resulting advocacy coalitions dynamics, and political venue shopping, i.e., where advocates took the issue, and what the new venue meant. I discuss these approaches in depth in Chapter Two.

Methods

As Pralle (2006) notes, to do case studies like these, you have to talk to people. I began my work on the Savage Rapids and Marmot removals by identifying key informants through American Rivers' database, which includes a contact person for each dam removal. In the case of the Elwha, which was not yet removed in the spring of 2011 (removal began in the low water levels of autumn), I identified key informants through the literature and through previous interviews with members of organizations that had been involved in my Oregon cases as well as in the Elwha. Having made contact with my initial informants, I conducted in-person semi-structured interviews, taking notes and recording the conversation digitally. I gave

informants the option of having the recorder off at any point in the interview. A few (2-3) did want the interview, or parts of it, to be unrecorded. Interviews focused on informants' roles in the issue – typically this role was only in specific episodes in the larger story, as very few people were involved in the entire 20+ year span of the Elwha or Savage Rapids cases. At the end of each interview, I identified subsequent informants through snowball sampling (Coleman, 1958). Ultimately, I interviewed ~80 informants. Two informants, both involved in the effort to save Savage Rapids Dam, refused to be interviewed, and several relevant political actors had died before I began my research. A few informants were involved in more than one of my cases. In several cases, informants' age and the many years between the events described and the day of the interview, as well as subtler issues like confirmation bias, self-absorption, and a desire to be seen to have been on the winning side meant that their accounts were likely not to be completely reliable (Pralle, 2006).

I confirmed and supplemented informants' accounts with archival research. I focused on newspapers as presenting the most consistent and reliable account of the issue as it was happening. I read each dam removal-related article to appear in each community's local newspaper. Each newspaper demanded different searches – the *Grants Pass (OR) Daily Courier* articles on the Savage Rapids Dam debate had been previously assembled by a dynamic *Daily Courier* journalist – these I photocopied and read. The *Sandy (OR) Post*, a weekly publication, is archived only in physical bound copies. I read through these by hand to find articles about the Marmot Dam.

The *Peninsula Daily News* (Port Angeles, WA) is on microfilm, but it is possible to search its articles online, using search terms. I searched “Elwha” to find relevant articles, but had to scan visually for stories in papers from 1985-93 – only a few articles from this era appeared in the online database. I began my visual search with 1985 because the intervention of environmental groups and the Lower Elwha Klallam Tribe in 1986 marked the arrival of the dam removal as an active issue.

I read each environmental impact statement for each removal, as well as other relevant written sources when they existed. These sources included legal documents, meeting minutes, interest-group mailings, and in the case of the Elwha, unreviewed dissertations. In the cases of Savage Rapids Dam and the Elwha dams, large but inconsistent masses of this material were available. The Marmot Dam had far less documentation, but its removal was a shorter and more contained process. I received some documents from PGE and from PGE’s neutral mediator, Deb Nudelman. The most important archival source for the Savage Rapids Dam was the Grants Pass Irrigation District meeting minutes, which I found in binders at the Irrigation District’s offices. I also received some documents from Bob Hunter, the lead advocate from the environmental group Waterwatch of Oregon. For the Elwha Dams, I relied upon the Rick Rutz, Polly Dyer, and Friends of the Earth papers, which are among the University of Washington’s special collections.

I used these sources to assemble a coherent narrative of each dam removal, ensuring that each chain of events was linked by causal connectors. This within-case analysis ensured that my account and the conclusions I draw from each case are sound and reliable (Goertz & Mahoney, 2012; Mahoney, 2000). I analyzed each case to understand the political strategies and tactics that drove the process, and then compared findings in my three cases in order to identify key variables and suggest future approaches for future scholars and future river stakeholders alike.

Dissertation Structure

In the second chapter, I discuss the political structures I investigate: political frames, advocacy coalitions, and venue shopping. I also discuss agenda setting, but the rise of each removal to the agenda is case-specific and represents only a small part of each case. Political strategies and tactics were the meat of each removal's story, and hold the most potential for broad applicability.

In the third, fourth, and fifth chapters, I describe the narratives of the Marmot, Elwha, and Savage Rapids dam removals. I place each dam removal in the context of its region, its history, and its natural environment and identify important variables that guided the progress of each case. Within each narrative, I perform analysis specific to each case but not between cases.

In the sixth chapter, I discuss the policy outcomes of dam removal: the restoration of Pacific anadromous salmonid runs. There were 40 dam removals intended to restore these fish runs between 1999 and 2011. I discuss how ecologically effective these projects were, and what they mean for future dam removal implementation and monitoring.

In the final chapter, I perform cross-case analysis of my three dam removals to identify common variables, draw important distinctions, and generate themes to be considered in future cases. While each dam, each river, and each suite of users are unique, there are a variety of important political and policy issues that were important across cases, and that are likely to be important in many future situations, for dam removals in the region as well as beyond it, and even for restoration questions aside from dams and rivers. I suggest approaches for understanding the politics of ecological restoration and possible avenues for future study.

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Chapter 2: Analytical Framework and Literature Review

Introduction

When Rick Rutz began to shop his plan to remove the Elwha Dams to environmental advocacy groups in Seattle, WA, his major challenge was to convince his fellow activists that he wasn't crazy and that dams could actually be removed (Rutz 2011). When Jeff Curtis, president of Waterwatch of Oregon, pushed dam removal to Rep. Bob Repine (R-Grants Pass) in Oregon's capitol, Repine "couldn't believe this was happening" (Curtis 2012). Jim Martin, as a young biologist watching fish die at Savage Rapids Dam, was told to be realistic when he expressed the hope that it would one day come out (Martin 2012). When Portland General Electric (PGE) decided to decommission the Marmot and Little Sandy Dams, they found that the stakeholders involved in the dam removal "had virtually no experience in how to make it happen" (Keil, 2009). As the removal of each dam rose to the political agenda, the first reaction was incredulity – the conflict would come later.

How dam removal successfully reached the active political agenda in this unlikely landscape demands close inspection of the stakeholders involved, and of their political tactics and strategies. To understand the new and evolving politics of dam removal, I draw upon actor-centered frameworks to investigate some essential political factors: actors' identity and alliances (using Sabatier and Jenkins-Smith's (1993) advocacy coalition framework), their beliefs and motivations (the political frames they used), and the strategies and tactics they employed to move the issue

from venue to venue toward their desired resolution (venue shopping). These factors are, of course, closely interrelated, each of them changing in concert with or in response to another. I then briefly review the political literature on dam removal before moving into my own analyses.

Actor-Centered Frameworks

In 1960, Schattschneider famously declared that, “the definition of alternatives is the supreme instrument of power.” As long as dam removals were rare – and through the 1980s, they were vanishingly rare – and largely driven by safety (Pohl, 2002), they were not a serious alternative for river managers. Fish and environmental advocates had always opposed dams, rued their environmental impacts, and advocated for dam removal – on the Rogue River, the small Ament Dam was said to have been sabotaged in 1916, before Savage Rapids Dam existed (Hunter 2011, Momsen 2011), and Edward Abbey’s popular 1975 novel *The Monkeywrench Gang* helped spark the rise of environmental extremism through opposition to the Glen Canyon Dam (Bender, 1997). But until recently pro-removal actors lacked the political power to do anything to remove dams. Even as river restoration became more politically salient in the late 20th century, advocates had to be resourceful and find creative ways to set their political levers.

Political change comes from problems, from a failure of the status quo (Birkland, 2006; Kingdon, 1995; Repetto, 2006). When such failures occur as a result of some

external triggering event, a sudden, traumatic occurrence such as a natural disaster (Balch & Press, 2003; Birkland, 2006; Kingdon, 1995), it would be appropriate to analyze change using an event-centered framework. But dam removal has not been triggered by events – the last famous dam failure in America was the Teton Dam collapse of 1976, and most ecological problems associated with dams (falling populations due to habitat loss, loss of structural material, temperature change, and so on) progress subtly, at background volume. Actors drive events in dam removal, so dam removal is best analyzed through actor-centered frameworks. Dam removal largely springs from new understandings of an old situation; what was once an accepted part of the status quo can, over time, become identified as a problem (Rochon, 1998; P. Sabatier & Jenkins-Smith, 1993).

While there has been no identifiable triggering event that caused removals to increase, early removals (most notably the previously mentioned Edwards Dam decommissioning) have inspired later ones (Crane, 2011; Kober, 2009; Lowry, 2003). The punctuated equilibrium model of policy change (Baumgartner & Jones, 1993; Repetto, 2006) accounts for these sudden bursts of instability leading society in new directions. Positive feedback may occur as change cascades. Baumgartner (in Repetto, 2006) suggests that policymakers' behavior can be driven by the expected behavior of others – if some institutions are enacting new policies, then they may feel that they should take action as well. While these bursts of activity do undoubtedly occur – witness the rapid establishment of most major environmental policy

structures in the late 1960's and early 1970's – it is relatively easy to find a focusing event in hindsight. There is always *something* that happened. By the same token, Kingdon's (1995) well-cited streams visualization (Clark, 2004; Pralle, 2006; Rochon, 1998; P. Sabatier & Jenkins-Smith, 1993) makes for a useful descriptive model – I draw upon it in my own descriptions – but as noted by Sabatier and Jenkins-Smith, the streams model is not predictive, and like punctuated equilibrium, is essentially one-size-fits-all.

The first event that must happen to set any policy change in motion is for an actor to voice their criticism of the status quo (Hirschman 1970). They must find a sympathetic and empowered audience to be effective, though, to convince people that there really is a problem (Rochon, 1998), and then to define it as one that can and should be solved (Baumgartner and Jones 1993; Birkland 2006). Repetto lists the Three-Mile Island nuclear power station accident as an Act of God, and in more recent times policymakers have discussed the Gulf BP oil leak in the same terms (Allen, 2010). This is clever problem definition – these issues were patently not acts of God unless The Almighty builds faulty nuclear reactors and drills poorly-secured oil wells. The ecological impacts of dam removal are certainly susceptible to this sort of characterization.

If a sufficient weight of actors voices their criticism, the matter moves from a private discontent to a subject of public debate. These actors then coalesce into a critical

community – an “invisible college” whose ideas on a problem inform debate and move it into broader circulation in the polis (Rochon, 1998). The critical community becomes a movement, and it is this movement that promotes the problem, and its potential solutions, to the political decision agenda. Politics has famously been defined as who gets what, when, and how (Lasswell, 1936). The “what” in Lasswell’s formulation is defined by framing.

Framing

Land use conflict comes when stakeholders look at one river (or forest, or mountain) and see different things. When multiple conflicting goals are supported by policy and by politics, the result, as Deborah Stone says (2002), is a policy paradox. There are few starker examples of this paradox than the competing demands the modern Pacific Northwest puts on its rivers. Rivers are expected to provide electricity for millions of people, irrigate vast expanses of agriculture, and nurture healthy populations of native salmon and trout, every year. These functions run directly contrary to each other. A river, then, becomes the locus of competing frames, as stakeholders promote their own values and understandings in a variety of arenas. As noted by Schon and Rein (1994), frame conflicts are challenging to resolve because a clash of deeply-held beliefs allows for little common ground – the two sides are effectively talking about two different things. While in practice most stakeholders are reasonable enough to at least admit the validity of other people’s perspectives, the competition is still over goals of identity and is unlike, for example, competing bids for a contract.

Frames are the assumptions stakeholders make in telling their stories, defining their problems, and presenting their arguments – their causal and moral contexts. Frames change, and so does their effectiveness, depending on their setting and audience. This is not a groundbreaking phenomenon – it is well-known to anyone who has ever tried to convince both their friends and their mother to acquiesce to the same plan for an evening – but it is crucial to landscape politics and is an important part of understanding policy change. Stone (2002) discusses frames in a variety of contexts – taking a Stonian view on problems, for example, floods can easily be cast as acts of God, necessary evils, beneficial ecological phenomena, or the result of callous human indifference. The solutions can be cast as natural or unnatural, a burden to be borne or a gift to be welcomed.

The essential framing clash in dam removal is how to use the river: what is the river for? Both sides can argue that they are in favor of a river's traditional, true, best purpose. Each side presents a powerful symbol of national heritage: on the one hand dams represent the working landscape, with nature bent to humanity's purposes (Hundley, 2001; Pincetl, 2003; Reisner, 1993; Worster, 1992), and on the other the wild and scenic stream, alive with fish, symbolizes America's unique natural beauty (Lowry, 2003; Nash, 2001). A stakeholder's frame for the river carries with it the crucial issue of who gets to use the river – should it be the domain of business or the government, local people or all Americans? – and who can legitimately take part in

important decisions. If you see the river as a source of regional economic growth, then an environmentalist who lives in Washington, DC and seeks to place an Oregonian river off-limits to hydropower development may not deserve a seat at the negotiating table.

The story of the river – what it was like before the dam, what the construction of the dam accomplished – shape stakeholders’ consciousness and their political priorities (Schon & Rein, 1994). In a novel issue like dam removal, the terms of debate have only been loosely defined, and each set of stakeholders will see different facets of their dam and river. Dams, as noted above, have been the objects of contention for many decades, but they vary greatly from case to case, and the frames through which stakeholders view and promote their river are likely to be diverse. Stakeholders’ understanding of a river’s uses goes on to set the stage for the next framing issue: the nature of the problem.

A problem rarely springs upon the world out of nowhere. Rather, as Rochon describes, conditions that were previously considered a routine part of life are eventually identified as problems – air pollution, which has been present since at least the Industrial Revolution, is an example. Once a problem has been identified, its scale is likely to be the next issue. In many cases, people may be aware of the trade-offs inherent in an issue, but may not weigh that issue’s costs as heavily as its benefits.

The trick for advocates is to frame the issue as big enough to demand a solution (Stone, 2002).

The tactics whereby advocates might convince people that a problem is indeed important are many and various. Key among them is associating the problem with a strong and sympathetic policy image (Baumgartner and Jones, 1993, Pralle, 2006). Baumgartner and Jones and Stone (2002) note that people understand policy in simplified, symbolic terms – necessarily so, as no one has the necessary expertise to fully grasp all aspects of most environmental problems. Oftentimes a policy image is a literal, visual image, like the World Wildlife Fund’s famous giant panda (*Ailuropoda melanoleuca*).

To ensure that their own frame takes root in their audiences’ minds, advocates must act quickly. Setting the initial terms of the debate confers an advantage – if you set the terms and construct the first image for the public, it is your solution that will seem the natural one (Lejano, n.d.; Pralle, 2006; Rochon, 1998). At the same time, it is likely that the terms of the debate will have been set, to some extent, by the status quo, and while advocates of change may have the advantage in raising the issue, their point of view must contend with that status quo and its pre-existing beneficiaries. The issue of blame complicates the definition of the problem, as blame carries moral overtones as well as the implication of responsibility, which may be economically as well as morally heavy. This is the flip side of Act-of-God problems – if a problem is

defined as human, then someone has done something wrong, or poorly, or negligently. In practice, few environmental decisions are made with truly nefarious motives, but accusations of negligence or ignorance are standard.

Framing responsibility is particularly important in selecting an appropriate solution for the conflict (Stone, 2002). The definition of the solution provides another framing battleground where advocates can attempt to thwart one another. Having established a problem as real and important, advocates may attempt to solve it while surrendering as few of their goals as possible. In climate change, for example, the argument for tamping down carbon emissions through cap-and-trade structures rather than a tax speaks to the American Right's preference for employing market-based solutions rather than relying on Leviathan (Hobbes, 1651).

At the same time, the easiest choice is no choice, and making a situation into a Hobson's choice in your favor is an effective political strategy (Stone, 2002). This demands a particular set of circumstances, though, where authority or expertise are entirely on your side. All of this will depend largely on resources and political venues – authority tools are likely to be desirable to those in authority. Symbolic exhortations, however, are almost ubiquitous, as the cheapest way to attract the most attention, and are likely to express a wide range of relevant frames (Schneider & Ingram, 1990).

At play in dam removal – indeed, in nearly every environmental issue – is the role of scientific expertise, as the involvement of state and federal resource agencies brings science and scientists into the political arena. The technical processes governing dams, rivers, and fisheries are beyond the expertise of nearly any stakeholder; there are few people who have been trained as engineers, ecologists, and hydrologists. Science is powerful, obscure, and indispensable in these issues, so stakeholders attempt to wield it for their own benefit in political battles. This is quite true in dam removal – Doremus and Tarlock use the term “combat biology” to describe the contentious (and ongoing) debates over dams on Oregon and California’s Klamath River (Doremus & Tarlock, 2008).

It follows that framing your goal as having the blessing of science is a powerful tactic. As Keller (2009) notes, all ideas are traceable back to their sources. In the agenda-setting stage of Keller’s model, scientists can set the policy image of their problem by telling their story first – they are the first to discover and understand it in any concrete way. Keller’s example, acid rain, is instructive. Acid rain was largely unknown to the public before Svante Oden publicized it in the 1960s. There were no serious challenges to scientific authority on the subject, Oden’s narrative became the accepted one, and acid rain was soon institutionalized as a scientific issue.

River issues, being more readily visible to the public, are likely to have science in a different and more contentious role, and to use it to counter goals held by other

stakeholders. In this case global climate change is a good example. Any serious effort to counter global warming will demand worldwide changes in the status quo, and issues like this can stoke Americans' characteristic skepticism about authority (Jasanoff, 1990). Rising stakes and uncertainty, say Funtowicz and Ravetz (in Jasanoff & Wynne, 1998), yield postnormal science, where many people take part and stake some claim to authority. The American political system provides the public with many access points (Jasanoff, 1990) and scientific statements can be attacked as too difficult or uncertain at levels from local to federal and in venues from newspapers to courts to congressional committees. As Vogel (1986) notes, laypeople cannot have much to add to a technical scientific debate, but in America, they do so anyway, recruiting and interpreting science in a way that suits them.

In keeping with the multiple possible uses of the river and the multiple identities of the dam, the frames associated with an issue shift as the issue makes its way to different venues. They change for and are changed by different audiences, priorities, and powers.

Venue Shopping

To return to Schattschneider (1960), "the most important strategy of politics is concerned with the scope of conflict." In the United States, conflicts never need to end. The multiplicity of points at which American citizens can access and affect their decision-making processes is one of the distinguishing features of the national

politics. An American can comment on a timber sale in a national forest, join (or form) an advocacy group to lobby for stricter industrial waste standards, write letters to the editor or even buy an ad in the newspaper, can promote their views through an array of social media, vote for or donate to representatives at local, state, and national levels, and can, of course, sue anyone (as long as they have standing) all the way, potentially to the Supreme Court of the United States. This means that any flaws in a course of action are open to exposure and attack (Brickman, 1984). This may improve decisions (Keller, 2009), as well as creating a meaningfully freer society, but it also means that a debate will be resolved only when one side runs out of resources or energy (Merrill, 2005). The ongoing controversy over national healthcare is striking example of this phenomenon.

The large array of options available to stakeholders in the US political landscape puts a premium on venue shopping, which is to say, finding the most advantageous decision-making venue in which to promote their cause (Baumgartner & Jones, 1993; Pralle, 2006; Schattschneider, 1960). As Pralle notes, it is sometimes possible to find a venue where decision-makers are unmoved by an opponent's political frame but sympathetic with one's own. Shifts in venues are likely to expand or at least alter the composition of political coalitions as well. In many cases, political venues involve legal, legislative, or appropriative power, but public opinion can also be an important venue as well despite its indirect effect on power – stakeholders can bring their case to a new venue through as simple an expedient as a cleverly-designed bumper sticker.

An excellent example of this is described by Pralle (2006): Canadian environmentalists promoted the preservation of Clayoquot Sound in far-off cities and in Europe, where people cared more about trees and wildlife than about British Columbian loggers. What one community considers its just desserts may appear to be unwarranted privilege or cronyism to another community.

Venue shopping, as described by Schattschneider, Baumgartner and Jones, and Pralle, is the most useful of frameworks for understanding dam removal. The choice of venue is perhaps the most consequential choice an actor can make – venues open concrete possibilities and set concrete limits and invoke specific powers and authorities. Venues can also connect a coalition to potential allies that are active there while excluding or marginalizing allies that might be powerful in another venue.

The diverse issues associated with fish and water open a remarkable number of potential venues to dam removal stakeholders, and the unformed nature of dam removal politics means that removals' potential political pathways are wide open. Venue shopping can be seen in all stages of policy change, from the formation of critical communities to the implementation of policies and the growth of associated cultural change. Pralle's description of agenda setting in Clayoquot Sound traces the fortunes of competing groups from their local beginnings through national and even global venues. The observable outcomes, of course, were local; after achieving a

successful policy output partly through lobbying in Europe, British Columbian environmentalists' ultimate outcomes occurred in Clayquot Sound.

The first instance of venue shopping in each case is the search for an introductory venue that brings each dam removal to Kingdon's political action agenda. Advocates must choose which policy levers to pull in order to make the removal of a dam – which they have desired, in some cases, for decades – into an active decision. There is no well-defined political structure through which stakeholders can automatically reassess a standing dam (except for hydroelectric dams), so dam removal proponents must creatively seek a venue into which they might fruitfully expand their conflict.

The decision's subsequent course through venues depends upon how much resistance the idea encounters. It is possible that a dam removal decision can be locally contained, with ready cooperation between private stakeholders and the relevant state and local agencies – indeed, it is likely that many removals of small and obscure dams have gone this way. Several dam removals have been multi-decade political fights, however, and venues will be necessary for understanding their progress. Klyza and Sousa (2013) note that while American politics in the Obama era is popularly considered frozen by a deadlocked US Congress, in fact, political change has simply shifted to other, more fruitful (though less broadly powerful) venues. This sort of political innovation is likely to expand motivated stakeholders' options even further into the future.

Nearly as instructive as the venues actors select are those that they avoid. Venue avoidance is not only to be thought of in terms of winning or losing, but in terms of the type of victory or defeat that a certain venue would provide. In the case of Savage Rapids Dam, an environmentalist lawsuit might have been successful, but it would have been a blunt weapon that would have been likely to ruin the Grants Pass Irrigation District (Shepard 2011). This would have ended environmentalists' credibility in the region and likely ruined any hope they might have had of partnering with local interests on future questions. Similarly, Portland General Electric could have simply surrendered its operating license and abandoned the Bull Run Project, leaving "a cement waterfall in the river with a fish ladder" but this would have been irresponsible and run counter to the company's values and its reputation in the community (Esler, in Irving, 2000, Esler 2012). Stakeholders' approach to venues can be indicative of their understanding of appropriate solutions and their role in relation to other stakeholders and authorities.

Coalitions

Sabatier and Jenkins-Smith (1993) posit an advocacy coalition framework (ACF) for understanding policy change movements. They see interactions between policy subsystems and the world around them as the best heuristic for understanding the arc of policy changes. Policy subsystems are the set of non-governmental actors and agencies that shape policy around any particular issue. The dynamism of American

politics drives these subsystems' continual evolution. Klyza and Sousa's multiple pathways indicate changing policy subsystems as well as policy venues, and the definition of subsystems and coalition members continues to evolve. While the ACF envisions broader and more coherent processes and political changes than dam removal has to offer, the framework's structure and insights on actors' interactions has been used many times to understand environmental politics (Weible & Sabatier, 2006), and it makes an appropriate lens for examining dam removal.

Advocacy coalitions, in Schattschneider's (1960) phrase, are "the mobilization of bias," wherein actors who share some value come together in support of that value. Sabatier and Jenkins-Smith draw an important distinction between these actors' core and secondary values. Core values are abstract, cultural or emotional in nature, and likely to remain stable over the long term, while policy change usually takes place around secondary values, which actors are more likely to see as negotiable. If core values are at issue, the level of conflict is likely to be high and the level of receptivity low, which reduces the likelihood of policy change. Sabatier and Jenkins-Smith note the influence of external perturbations on the balance of debate between coalitions – some disturbance may alter the situation and cause previously unaffiliated groups to join a coalition, changing its focus but potentially adding to its power. If a policy image corresponds strongly with a pre-existing core value, even if the connection is hard to define, then the resulting advocacy coalition will be strong. Rochon (1998) refers to the "Norman Rockwell image of America," an idealized small-town America

that resonates strongly with conservative politicians (despite Rockwell's actual paintings depicting progressive struggles with sympathy and power). The idealized communities portrayed in many of Rockwell's paintings express an America that embodies conservative core beliefs – traditional family, piety, the inherent virtue of small towns, and so on – so conservatives are likely to recognize themselves and their beliefs on the canvas.

The ACF emphasizes five major points: The importance of scientific and technical information, the importance of evaluating change over at least a decade, analysis using the policy subsystem, the inclusion of all actors, and policies as indicating belief (Weible, Sabatier, & McQueen, 2009). With the exception of the decade stipulation, which does not apply to individual cases, all of these are vital in dam removals, and indeed in many land use issues. These points are likely to raise intra-coalition tensions, as actors may strive for the same goal and belong to the same coalition but hold different core beliefs.

Dam removal's short history means that its policy subsystem is being shaped and re-shaped, making it particularly susceptible to external shocks and structural changes. This instability results in policy events that challenge Sabatier and Jenkins-Smith's 1993 ACF hypotheses, as alliances and attributes shift. Most importantly, the American political system is considered to be much more receptive to dam removal in the 2000s than it was in the early 1980s (Rutz 2011, Raabe 2012). But there are few

laws specifically addressing dam removal or ecological restoration, and while events like the removals I detail in this work are helping create a new subsystem, in the near term advocates face an open and largely undefined political landscape. The story of dam removal politics is one of creative stakeholders opportunistically using whatever political allies they can find. This includes the involvement of many stakeholders who had previously had only passive interactions with the dam or the river, such as people who appreciated the reservoir for its scenic beauty.

In the decades since Sabatier and Jenkins-Smith first suggested the ACF, it has been subject to a great deal of commentary and revision (Sabatier, 1998; Weible, 2006; Weible & Sabatier, 2006; Weible et al., 2009; Weible et al., 2011). It is important to remember that ACF's many hypotheses (15 of them as of 2009 (Weible et al., 2009)) are only intended to be tested one by one. This has resulted in a varied, flexible, not to say sprawling, set of suggestions about understanding and categorizing policy change. Despite this dilution, the ACF remains a useful tool for categorizing and describing political change.

Literature Review

Bill Lowry's *Dam Politics* (2003) remains the most prominent work on dam removal. Written as the new era of dam removal was gathering head, Lowry investigated a broad selection of dams across the United States in search of the political conditions that affected ecological restoration. He concluded that two variables: physical

complexity (measured by size, age, activity level, and danger), and political receptivity (venue receptiveness to change, acceptance of science, and cost level and clarity) were the driving factors in facilitating or impeding restoration. Physically, according to Lowry, features correlated with a higher likelihood of removal are small size, old age, inactivity, and greater hazards. Using his political variables, Lowry roughly quantified the cooperation level of stakeholders, and was unsurprised to find that more cooperation means a better likelihood of removal.

Dam Politics was published eleven years and 529 dam removals ago (American Rivers, 2013, 2014). The dam removal politics and policy literature since then has been piecemeal and case-specific, and Lowry's book has been more cited than built upon. The exception to this has been the work of Bradley Clark. Clark (2009) took Lowry's variables and, focusing upon the American West, added to them the jurisdiction "through which the politics of change transpire," the volume of the dam's reservoir, and the number of upstream miles restored in a restoration project. He found that lowered physical complexity (in terms of reservoir capacity) does indeed correlate with a higher chance of removal. Clark also found that restored river mileage increases with removal, and that intergovernmental dams are much more likely to be removed than dams overseen by the Bureau of Reclamation (BOR), the Army Corps of Engineers, and the Federal Energy Regulatory Commission (FERC). While this last finding is interesting, it is likely to be complicated by federal dams' being larger, which he and Lowry include among their variables, and having other

political and functional advantages. Clark also notes that dams run by FERC are relatively likely to be removed while BOR and USACE dams are not. This is particularly interesting in light of Clarke and McCool's (1996) characterization of USACE as an adaptable organization that has risen to the environmentalist era and incorporated ecology into its thinking. At the same time, the policy lever that is FERC's relicensing process does not exist with USACE dams. Clark correctly suggests that the current age of dam removal is setting the stage for important policy changes in the future.

I see no reason to disagree with any of Lowry or Clark's conclusions, but I believe that there are other important variables to be investigated. For example, I expect that the presence of an endangered species or some other legal "hammer" would make a dam removal much more likely. Another issue not deeply investigated by either Lowry or Clark is distributive consequences: who pays for the removal, who benefits from it, and who loses. These issues factor into the level of cooperation, of course, but they are hard to standardize as they change a great deal from case to case. These might be reasonably incorporated into political receptivity or physical complexity, but it is likely that they should be weighted more heavily than other factors. Lowry and Clark also address barriers to dam removal more than its benefits. While these barriers are obviously very important, the benefits and effects of dam removal will be increasingly clear and useful as the trend grows over time, and they are well worth

some scholarly attention. In 2003 there had been few long-standing dam removals, so their benefits were mostly anecdotal or speculative.

The time that has passed since Clark's (2009) research (which ended in 2006) has revealed that the West Coast is a more appropriate region for dam removal scholarship than the entire American West. From 1999-2010 there were some 55 dam removals in California, Oregon, and Washington; in the rest of the West there were seven (American Rivers, 2013). While many themes of traditional Western politics are present in Oregon and Washington, there are also important differences – their relatively wet climates and the political power concentrated in the liberal cities of Seattle and Portland, for example.²

Some authors have identified a variety of beneficial effects from dam removals. Along with whatever emotional and scenic gains are found in a restored river, removal may lead to higher property values and even a renewed riverfront economy, as has happened on Maine's Kennebec and Wisconsin's Baraboo Rivers (Heinz Center, 2002). On Wisconsin's Milwaukee River, a former impoundment is now a popular public park (Graber, 2002). Economically, dam removal appears to provide some broad benefit (Gowan, Stephenson, & Shabman, 2006; Kuby et al., 2005; Loomis, 1996; Loomis et al., 2000). Both Loomis and Gowan suggest that society increasingly values intact ecosystems – Loomis calculates the nationwide value of a

² This is even more true of California – while my case studies do not take place in California, several important future removals will take place in the state.

restored Elwha River to be in the billions of dollars. Kuby's intricate study indicates that it is possible to balance ecological restoration with a minimum of economic upheaval through targeted dam removals that take whole watersheds into consideration. Provencher and colleagues (2008) look into dam removal's effect on property value, concluding that proximity to a free-flowing river increases property values. Johnson and Graber (2002), looking at small dam removals, emphasize the social context of the removal – the way communities understand their dams – as central to the decision, and suggest that improved decision-making would incorporate improved ecosystem health among the options offered to the community. Pejchar and Warner (2001) investigate potential dam removals as benefitting endangered species, and suggest that the Endangered Species Act might offer a useful policy lever for removals, but their work remains quite speculative – the dams they study were not removed, and indeed have not been removed, 13 years later (American Rivers, 2013, 2014).

Some of the most current work on dam removal politics has been done in Sweden. Lejon and Nilsson (2009) identify funding, threatened species, and cultural/historical values as crucial to the progress or failure of dam removal. They make the important point that in dam removal, the outcome of the project – implementation and tangible results – matters more than the output – the removal itself. They note that it is important to for removal advocates to maintain clear communication with stakeholders so that all, no matter their background, have a strong sense of what that

outcome will be. Jørgenson (2013) builds on this by exploring portrayals of dam removal in the Swedish media, confirming that differences in dam issues tend to spring from cultural divides. Both scholars are associated with the Christer Nilsson lab at Umeå University, which has produced a great deal of interdisciplinary scholarship on dams and restoration (Dynesius & Nilsson, 1994; Jansson, Nilsson, & Malmqvist, 2007; Jørgensen et al., 2014; Nilsson et al., 2013). Lejon and Jørgenson's findings offer insights and applicability for the American landscape. While dams are cultural structures, understood differently from place to place, many of the themes these scholars touch upon are strongly present in the United States. Indeed, they are all but universal, found anywhere with dams, rivers, and people – though their political roles and importance will vary from case to case.

Beyond the social sciences, dam removal in the Northwest has attracted some attention in the legal literature, with Bender (1997) providing a short but insightful discussion of three cases of dam removal (two of which I focus upon in this work) and the political barriers advocates faced. It is notable that his paper was published before the key political turning points in the cases of the Rogue and Elwha, and more than a decade before any of the dams he discusses were removed. Bender's essential conclusion is that advocates must be better aware of the political landscapes in which they are attempting to operate – a reasonable, if broad, conclusion. It is fair to say that almost no-one had much sense of the politics of dam removal in 1997. Whitworth (2001) investigates the role of beneficial use in the removal of Savage Rapids Dam,

examining the productive use of this “dormant doctrine” to leverage the removal of a non-FERC dam (Savage Rapids’ removal had not been conclusively decided when Whitworth published his paper, but as he noted, the writing was very much on the wall). Far more recently, Blumm and Erickson (2012) performed a broad survey of seven northwestern dam removals (including the three I focus upon in this work). Their treatment includes some worthwhile detail but would have benefitted greatly from closer engagement with the cases they purport to describe. In the historical literature, Crane’s (2011) environmental history of the Elwha delves deeply into the events shaping that river and its dams, as well as rivers and dams around the United States, but adds little to our understanding of dam removal politics. The social, political, and economic aspects of dam removal have been addressed many times in other forums, from unpublished dissertations to newspaper and magazine articles to documentaries to popular books, most notably Elizabeth Grossman’s well-researched *Watershed* (2002).

I do not seek to erect an analytical framework of my own, but to build on the work of Lowry, Lejon, and Bender to further our understanding of dam removal politics. I seek to use frames, coalitions, and venues to identify key variables in dam removal and generate hypotheses to be tested by future removal scholars. While dam removals are idiosyncratic, these factors run, like a braided river, through many of them, and will continue to do so.

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Interviews

Many interviewees changed organizations or played several roles during dam removal process. The affiliation identified here is their most prominent as it related to the dam removal.

<u>Name</u>	<u>Affiliation</u>	<u>Date</u>
Curtis, Jeff	Waterwatch of Oregon	11/26/12
Esler, John	Portland General Electric	1/30/12
Hunter, Bob	Waterwatch of Oregon	4/19/11, 6/16/11, 7/19/12 Email 5/5/14
Martin, Jim	Oregon Department of Fish and Wildlife	8/7/12
Momsen, Joan	Josephine County Historical Society	6/20/11
Raabe, Peter	American Rivers	7/31/12
Rutz, Rick	Conservation Interveners	11/8/11
Shepard, Dan	Grants Pass Irrigation District	7/13/2011

Chapter 3: Marmot Dam and the Bull Run Project

Introduction

In 2007 the Marmot Dam, 47 feet tall, was removed from the Sandy River. It was the largest hydroelectric dam to be removed in the United States. The removal restored natural flows down the Sandy's entire length. The Marmot removal process holds lessons for future river decisions as an efficient, effective negotiation wherein diverse stakeholders worked through serious political and technical challenges to achieve significant restoration for the watershed. Leadership from the dam owner, a focused and open approach to stakeholders' goals, and creative utilization of policy structures created the political conditions for success.

The Sandy River runs 56 miles from the slopes of 11,239-foot Mt. Hood to the Columbia River (Figure 3-1). Its mouth is 24 miles below the Bonneville Dam, the lowest dam on the Columbia, and seventeen miles east of Portland, Oregon's largest city. A turbid stream, it was christened the Sandy by Lewis and Clark, in 1805 (American Whitewater, American Rivers, & Trout Unlimited, n.d.). As a relatively wild river near a major city, it is noted as an outstanding recreational resource and is one of the most popular fishing destinations in Oregon (Alsbury, 2012). Much of the river's watershed lies in Mt. Hood National Forest. The Sandy basin includes the Bull

Run River, which provides Portland's municipal water.³ It is a watershed of many stakeholders and many uses.

History

In 1906, the Mt. Hood Company began work on a hydroelectric project in the Sandy Basin. In 1912, the project began to produce power, with a 16-foot diversion dam on the Little Sandy River sending water through flumes to a forebay named Roslyn Lake. The next year, power from the 30-foot Marmot Dam came online. The dam was a timber crib structure, made of logs with fill added. In 1924 the whole system – dams, powerhouse, lake, and flumes – was licensed as the Bull Run Hydroelectric Project.⁴

³ It is important to distinguish between PGE's Bull Run Project and Portland's dams on the Bull Run River, which also produce electricity.

⁴ It is also important to be clear about the distinction between Marmot Dam and the Bull Run Hydroelectric Project. The dam was the main issue in decommissioning, but it existed as part and parcel of the larger project, which stakeholders considered and dealt with as a whole. The Little Sandy Dam was also removed, but its removal was essentially an appendage to the Marmot removal.

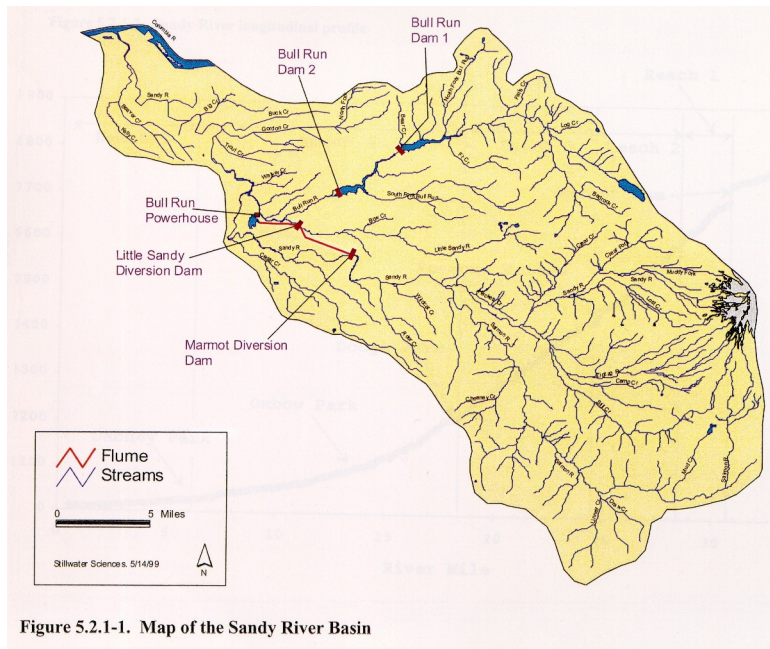


Figure 3-1. The Sandy River Basin (US Forest Service, 2014)

Sometimes described as a “Rube Goldberg machine,” (Esteve, 1999a) the Bull Run project sprawled across the landscape in a convoluted network of diversions, flumes, tunnels, and turbines (Figure 3-2), but it worked, providing 22 megawatts of power. In the early twentieth century, this represented a significant electricity source (Keil, 2011), but by 2003, it was 1% of PGE’s generation (FERC, 2003).

The Mt. Hood Company merged with the Portland Railway, Light, and Power Company in 1912 (Taylor, 1998). This company became Portland General Electric (PGE), which owned and operated the project for the rest of its existence. Bull Run provided power for the city’s trolleys (Wollner, 1990). In the Progressive Era, the political tide was turning away from private power providers like PGE; many of the

Northwest's public utilities formed around the turn of the century (Wollner, 1990; Kirkendall, 2011). Knowing that the city of Portland could always form its own public utility, PGE sold its power relatively cheaply. This became even more important as the construction of the enormous Columbia River dams in the 1930s made northwestern power the cheapest in the United States (Wollner, 1990). Thus the value of Marmot Dam's power was reduced from the beginning – a small piece of the northwestern energy puzzle, just as the Sandy River forms a small part of the Columbia basin (Kirkendall, 2011; Jensen, 2012).

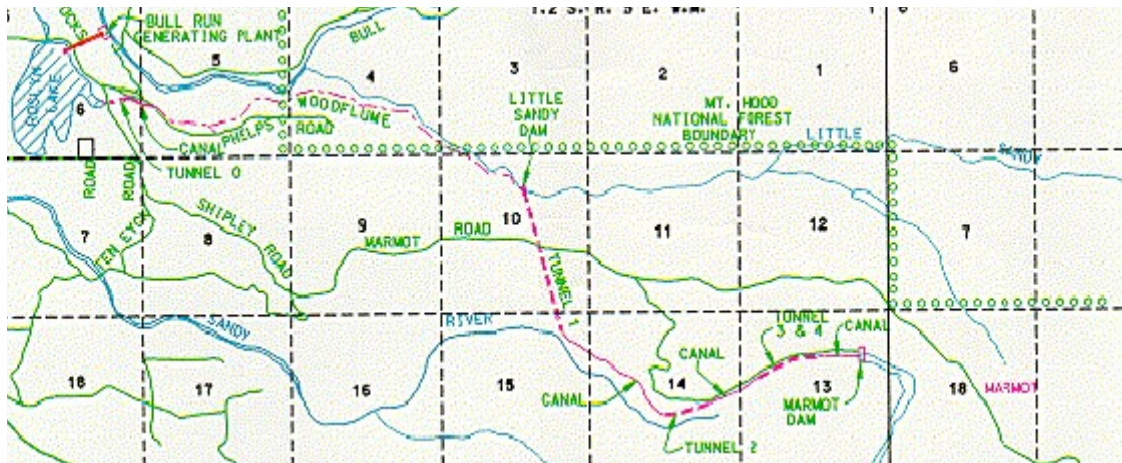


Figure 3-2. The Bull Run Hydroelectric Project. Water flowed northwest along the pink line (US Forest Service 2014)

Fish, Dams, and the Sandy River

Historically, the Columbia River Basin was the greatest salmon producer on earth, receiving 11-16 million returning adult salmon every year (Bottom et al., 2005). By the late 1800s, runs in the Lower Columbia basin, including the Sandy, began to

decline under pressure from industrial development – timber, fishing, and urbanization (Taylor, 1998; White, 1995). A question arose that has bedeviled northwestern rivers ever since: how to build industry without losing fish? The balance tipped decidedly toward industry; Columbia salmon are at roughly 12% of historic levels (Bottom et al., 2005). Sandy River salmon and steelhead trout dropped to 10-25% of historic levels (Taylor, 1998).⁵

The solution, in many places, has been hatcheries. In the Sandy, people started collecting salmon eggs for artificial propagation as early as 1887 (Taylor, 1998). The Oregon Fish Commission, as it was named then, built a permanent hatchery below the dam in 1938. The Sandy's fish have been a mixture of wild and hatchery stock ever since. Some 80% Columbia salmon and steelhead are from hatchery stock (Bonneville Power Administration, 2010). The Oregon Department of Fish and Wildlife (ODFW) now operates the Sandy hatchery.

Salmon runs declined but salmon fishing continued in the Sandy basin. The town of Sandy sits along Oregon Highway 26, the main artery linking Portland to the skiing and hiking destination of Mt. Hood, and a stream of anglers used the river (for example, Cade, 2007; Keller, 1997). By the early 1980s the Sandy was the second-

⁵ Steelhead trout (*Oncorhynchus mykiss*) are the anadromous form of the widely familiar rainbow trout. Politically, economically, and ecologically, they are essentially another type of salmon. Anadromous cutthroat trout (*O. clarkii*) and Bull trout (*Salvelinus confluentus*) are similar. For this reason, when I refer generically to “salmon,” I include these fish as well.

most productive fishing stream in Oregon (Goranson, 1989b). This gave Sandy River fish two political constituencies – urban anglers who spent their leisure time on the Sandy, and fishing guides whose livelihoods depended upon those anglers having fish to catch. Fly fishing workshops were offered regularly in the area, and nearby Mt Hood Community College offered fishing classes (for example, “Blue Lake hosts Fly Fishing seminar,” 2006, “Fly-fishing workshop presented by Lauzon,” 1997).

Fishing on the Sandy evolved around the Marmot Dam. The Sandy River hatchery ensured an active year-round fishery by stocking winter and summer runs of steelhead and spring Chinook (*O. tshawytscha*) and Coho (*O. kisutch*) salmon. This was advantageous for anglers, shops, and guides, but the program drew criticism from wild fish advocates: there probably never was a significant native run of summer steelhead on the Sandy, so ODFW used South Santiam River stock (ODFW, 2013). Marmot Dam itself was used as a collection point for hatchery brood stock (Taylor, 1998). It was also used to separate hatchery and wild fish.

But the dam limited Sandy River fishing as well. Marmot was built with a fish ladder to allow adult fish returning from the ocean to spawn upstream, but originally, it did not have any system to guide juvenile fish downstream, or screens to keep fish from going into canals and through the Roslyn Lake powerhouse (Taylor, 1998). Marmot

Dam diverted 600 cubic feet per second (cfs)⁶, leaving sharply reduced downstream flows – sometimes as little as 30 cfs (Taylor, 1998). This, combined with the dam’s retention of silt and material, degraded downstream fish habitat.⁷ In 1948, the Oregon Fish and Game Commission⁸ asked PGE to install screens to keep fish out of the Sandy diversion canal (Taylor 1998). Combined with a juvenile bypass canal, these were effective for fish more than two inches long, but not smaller juveniles (FERC, 2003). By 1976 PGE was required under the terms of its renewed Federal Energy Regulatory Commission (FERC) license to maintain minimum downstream flows of 520 cfs⁹ from June 16 to October 16, 400 cfs from October 16-31, and 460 cfs November 1 to June 15 (FERC, 2003). This system caused the dam to lose some generation capacity, and, of course, diminished Bull Run’s economic value (Kirkendall, 2011). PGE maintained their fish passage facilities regularly throughout this time (Taylor, 1998).

These mitigation efforts, and similar efforts on other rivers, were not enough to rescue northwestern salmon populations. By 1991, 106 major Pacific salmon populations had been extirpated, and most of the rest were at risk of extinction

⁶ The typical flow level at Marmot Dam is between about 1,030 cfs (in the early spring) and 266 cfs (in the late summer) (FERC, 2003)

⁷ The entire Little Sandy was diverted to the powerhouse, totally dewatering that stream except during very high flows - above 800 cfs (FERC, 2003). This, of course, eliminated its salmon runs.

⁸ Broadly, the Commission makes management programs and policies, which ODFW carries out.

⁹ FERC’s draft Environmental Impact Statement (2003) says 5200 but this is likely a typo given the river’s typical flow levels.

(Nehlsen, Williams, & Lichatowich, 1991). That same year, the Snake River sockeye (*O. nerka*) became the first Evolutionarily Significant Unit (ESU) of salmon to be federally listed by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS). Northwestern fish advocates saw listing as their best option to save failing fisheries (as well as to protect rivers), and vigorously petitioned NMFS to list more and more runs (Sherwood, 2012). A flurry of federal listings followed in the late 1990s; 25 Pacific salmonid runs were federally listed by 2000.¹⁰ An emboldened and proactive environmental movement, wielding the Endangered Species Act (ESA) as a weapon, pushed fish and river management to the forefront of the region's environmental politics.

In March 1998, NMFS listed Lower Columbia steelhead as threatened (NMFS, 2011). The next year, the Lower Columbia Chinook and Chum¹¹ followed, as did Bull Trout (NMFS, 2011; USFWS, 2002). The Lower Columbia/Southwest Washington Coast Coho salmon (*O. kisutch*) was a candidate species; it would eventually be listed in 2005. Each of these ESUs included the Sandy River.

Relicensing and Surrender

Bull Run's license was renewed for a term of thirty years in 1974. But by 1988, the original timber crib dam was leaking badly and was in danger of collapse. Part of the

¹⁰ 28 ESU's were listed by 2005. Two ESU's have been de- and re-listed.

¹¹ Chum salmon occasionally run in the Sandy, but the population is not consistent enough to warrant evaluation in the Bull Run EIS (FERC, 2003; Taylor, 1998). The other three species are well established in the river.

dam's interior had fallen in, and water flowed through the structure (Goranson, 1988). In 1989, PGE installed a new Marmot Dam), 47 feet tall and built of poured concrete, partly to meet seismic criteria (Heintzman, 2013). The company upgraded Marmot's fish ladder and passage facilities at the same time. At the ribbon-cutting ceremony, PGE CEO Peggy Fowler expressed the hope that "this dam could last for centuries" (Goranson, 1989a). She, like most people, was likely not aware that the era of federally listed salmon and altered calculus for northwestern rivers was just around the corner.

In 1998, PGE began the process of renewing Bull Run's license. The utility assembled a broad stakeholder group to collaborate on relicensing Bull Run as well as PGE's Clackamas project, which was due for relicensing in 2006 (Portland General Electric, 1999). This group would form the core of the coalition that determined the fate of the project for the rest of its life. The assumption was that Marmot, like most dams, would be relicensed, with some updated facilities, and would continue to operate for another 30-50 years (Esler, 2009; Esler, 2012; Heintzman, 2013). However, after a close look at Bull Run's environmental issues and the projected value of its future energy production, the company had second thoughts. PGE had three other hydroelectric project licenses expiring by 2006, with a combined production of 556 megawatts to Bull Run's 22 (Keil, 2009). The company decided to focus its relicensing efforts on these more valuable projects and to look into decommissioning the Bull Run project (Keil, 2011; Esler, 2012; Heintzman, 2012).

This decision, just nine years after rebuilding Marmot Dam, represented a major reversal. In an informative article, PGE hydroelectric project licensing manager John Esler laid out the changes in circumstance that led to the decision (Esler, 2009). The most significant difference was the listing of the Lower Columbia salmon. PGE would now need to pay to replace its Sandy River fish ladder and to install expensive new fish screens for juveniles migrating downstream (Young, 2011; Burchfield, 2012). Complicating the fish management problem, some Sandy River water was diverted into the Bull Run River, which ODFW found “confused migrating fish, who wrongly nosed up to the powerhouse outfall searching for their spawning grounds” (Jensen, 2003).¹² PGE would also have to return sufficient flow to the Little Sandy for fish to survive in the previously dewatered downstream reach (Athman, 2012). How much this would have required is unrecorded, but some indication of is to be found in PGE’s later transfer of its water rights to instream flow, which include 200 cfs to the Little Sandy (FERC, 2003). Two hundred cfs represents a quarter of PGE’s full water right for the Bull Run project. PGE also expected to have to leave more water for fish in the Sandy River itself. Bull Run’s production cost per megawatt-hour was more than double PGE’s hydro average (Keil, 2009). All this would mean less water flowing through the powerhouse at Bull Run, less electricity from the project, less income – “cascading decisions,” in the words of Julie Keil, PGE’s widely-respected Director of Hydro Licensing and Water Rights (Kirkendall, 2011; Nudelman, 2011;

¹² Fish imprint on the chemistry of their natal stream, partly accounting for their famous ability to return there to spawn.

Heintzman, 2012; Esler, 2012; Grant, 2012).

Future maintenance on this Rube Goldberg hydro project, with its flumes and tunnels sprawling across the landscape, was likely to be expensive as well (Keil, 2009). The flume and the project's creosote lumber would have to be replaced by helicopter, there being no roads into much of the area (Prather, 2012). The water in the Sandy River Basin also exceeded 64° Fahrenheit, the Oregon Department of Environmental Quality's temperature standard for salmon rearing downstream of Marmot Dam (FERC, 2003). Salmon are cold-water fish. Along with being physically stressed from high temperatures, they are susceptible to diseases and parasites that thrive in warm water (Myrick & Cech, 2005; Ray, Holt, & Bartholomew, 2012). It would be difficult to re-operate the project in such a way as to reduce temperatures below Marmot Dam while producing enough electricity to make the investment worthwhile. It is also notable that in the 1990s, energy was cheap (Esler, 2012). From 1990-2000 the price of electricity in Oregon was 4-5 ¢/kilowatt-hour – since then it has been between 6 and 8 ¢/kilowatt-hour (US Energy Information Administration, 2014). Calculating the value of Bull Run's power over the decades of a renewed license, it was not worth keeping project (Heintzman, 2014).¹³ Had the license expired later, the math, and perhaps the decision, would have been different (Alsbury, 2012; Esler, 2012). The total cost of a renewed license, including foregone power (but not including the landslides that crashed into the project flume once or twice a decade), was anticipated

¹³ PGE's specific calculations are also proprietary.

to be \$30 million; early estimates indicated that the decommissioning cost would be \$22 million. The company was also well aware of the public relations impact of performing such a dramatic and environmentally powerful action near environmentally-conscious Portland (City of Portland Oregon & Portland General Electric, 1999; Heintzman, 2014). Indeed, the city made a natural partner as PGE turned from relicensing to restoration.

Portland was the other major Sandy Basin stakeholder; the city gets its drinking water from the Bull Run River. Portland's massive (100 and 200-feet in height) dams on the Bull Run are impassable to fish, so the city must mitigate their impact elsewhere. Aside from Portland's Bull Run infrastructure, the Willamette River flows through the urban core of the 500,000-person city, and is, of course, heavily impacted. By the end of 1999, the Willamette, and therefore downtown Portland itself, contained threatened salmon (Sten, 2013). Mayor Vera Katz asked water commissioner Erik Sten to formulate a response to salmon listings (Sten, 2013). The city already balanced some of its impact on salmon by helping fund ODFW hatchery production (Taylor, 1998), but listings would demand more than this. Sten thought that the listings and PGE's licensing process might provide an opportunity to go beyond regulatory agencies' mandates and proactively benefit salmon (Jones, 1998; Sten, 2013). Looking over the larger Sandy watershed, the Bull Run hydro project seemed like one place where Portland could perhaps help restore salmon habitat without changing its own municipal water system (Sten, 2013). Conversations about a

collaborative decommissioning process began between the utility and the city. Early on, the focus was on the dewatered Little Sandy and its smaller dam (Jones, 1998b), but talks expanded to include the whole project in 1999. Oregon Governor John Kitzhaber, a staunch environmentalist heartily devoted to salmon conservation and feeling the same ESA-driven pressures, also expressed his support, and pledged \$10 million in state money to make up for PGE's power loss (City of Portland Oregon & Portland General Electric, 1999a). This made for a significant share of the \$22 million decommissioning cost (City of Portland Oregon & Portland General Electric, 1999b). The stakeholders also harbored hopes of raising dam removal money from the federal government (Menard, 2013). It is common to seek funding for big projects like dam removal in higher, richer political venues; few object.

In May 1999, PGE, the city of Portland, and Kitzhaber's office announced the decommissioning in a press release (City of Portland Oregon & Portland General Electric, 1999a). Kitzhaber saw the decommissioning as a victory for nature, saying that, "for the first time in almost a century, Oregonians will see these two rivers flowing freely again," letting the salmon "return home." Fowler spoke of how the decommissioning would save money, and restore the environment, and help the people of Portland. In the words of Northwest Sportfishing Industry Association (NSIA) Executive Director Liz Hamilton, this was "a win-win for everyone" (Brinckman, 1999). The city would fulfill its ESA responsibilities (and burnish its reputation as a citadel of Green America), NMFS and the fishing community would

get more restored habitat, PGE would save on expensive renovations and get a long term agreement to buy power from Portland's Bull Run dams (Brinckman, 1999). The removals, considered only the second and third to take place in Oregon (Brinckman, 1999), were full stream ahead.

At a relicensing meeting the next month, Julie Keil addressed the stakeholders. She discussed the changes that had taken place for the project, explained that they would be planning a decommissioning, not a license renewal, and indicated that 2000 would be the target year for the removal of the Little Sandy Dam; Marmot would come out in 2001 (Portland General Electric, 1999; Kucas, 2012). On November 12, 1999, PGE filed a notice of intent not to renew the license (FERC, 2003). Such a notice is irrevocable. Other utilities would have been able to compete for the license at this point, but none did (Keil, 2009; Mitchnick, 2012). On March 9, 2000, FERC made public notice of PGE's decision. This move set a hard deadline by which PGE had to file its application for surrender: November 21, 2002, two years before Bull Run's license expired (Mitchnick, 2012). FERC was now essentially removed from the decision process. Its only roles going forward would be to approve the surrender application and then, later, decide whether or not to accept PGE's terms of surrender (Mitchnick, 2012). Indeed, this was part of PGE's motivation to make a decommissioning deal; PGE wanted to control its project's future itself, with the help of the mandatory authority wielded by some of the resource agencies at the table (Esler, 2012). FERC's rulings are blunt instruments.

PGE could not miss its deadline: if there was no agreement on a course of action by that time, the project would again be available for any other operator interested in applying to license it, and possibly FERC would issue orders on what to do with the unused, unlicensed project (Keil, 2009; Heintzman, 2012). The challenge became how to structure the conditions of surrender in such a way as to satisfy state and federal agencies with authority over the various resources affected by the action, as well as the private stakeholders involved and of course PGE itself.

PGE knew that the path ahead would be complicated, given the landscape effects of the project. At a stakeholder meeting, the company asked representatives of the resource agencies if they would be open to assuming liability for Marmot and its role in Sandy fish management. Kammy Kern-Korot of ODFW replied that the agencies, state and federal, had discussed this, and, while they were concerned about fish management, they supported dam removal and were not interested in taking on the liability or risk of operating Marmot Dam (Portland General Electric, 1999). The project's management role was in jeopardy along with its power production.

Eager to deal with the issue efficiently, PGE forged ahead toward decommissioning. The utility circulated a draft surrender application, preliminary draft environmental assessment, and draft decommissioning report in March 2000. Company representatives met with the stakeholders in Portland on April 17, and held a public

meeting in the town of Sandy that same day. The intention was to seek input on the draft documents and incorporate this information into a final surrender application, which they planned to file on June 1. PGE consultant Tom Sullivan: “Today's meeting is really just a meeting to kind of see if folks have questions to clarify some of the things that were in the reports” (Nageli Reporting Corporation, 2000b).

Indeed they did. The transcripts of the Portland and Sandy meetings are 66 and 109 pages long, respectively, and full of questions from worried stakeholders (Nageli Reporting Corporation, 2000a, 2000b). Additional written comments came in over the following weeks. PGE looked at the many complicated issues raised by commenters in these and in other forums over the previous year, and realized that their speedy timeline would not be feasible (Heintzman, 2012). On May 17, 2000, the company called this phase of the stakeholder process to an end, delayed their surrender filing date, and began to reassess the situation (Portland General Electric, 2000; Keil, 2011; Esler, 2011). As PGE representative Mark Fryburg put it, “We found out breaching dams is very complicated and we were on a fast timeline. You could almost hear a collective sigh of relief when we decided to go slower” (McMullen, 2000b).

The possibility arose of PGE simply surrendering the license and abandoning the project, leaving, as John Esler put it, “a cement waterfall in the river with a fish ladder” (Irving, 2000b). Abandonment was distasteful all around (Keil, 2009; Nageli Reporting Corporation, 2000b; Kirkendall, 2011; Esler, 2012; Kucas, 2012). Julie

Keil had already declared that, “PGE’s position on stewardship alone would dictate that they return to the stakeholders group to coordinate what would likely happen to the project in that event” (Portland General Electric, 1999). However, if concerns over fish and sediment management could not be resolved and nothing was done, orphaning the dam was the default option. This is not uncommon: there are nearly 3,000 major dams with no recorded owner in the United States (US Army Corps of Engineers, 2014). Given the legal option of orphaning the project, the Sandy would have flowed into a jurisdictional mess – it is uncertain just what mandatory authority regulatory or management agencies have once a license has been surrendered (Keil, 2009).

The central challenge was the novelty of the situation – PGE and the stakeholders were trying to do something that hadn’t been done much before. Most of the stakeholders in the group were familiar with the FERC relicensing process, but few of them had been through a license surrender and dam removal, certainly not one of this scale, and there was little sense of how to proceed – there was no template (Esler, 2012; Keil, 2011; Keil, 2009). The landscape changes associated with the removal had raised three particularly important and difficult issues: fish management, silt management, and how to address the fate of Roslyn Lake. In the absence of concerted opposition to dam removal, these questions would shape the course of negotiations for the rest of the process.

The Silt

Behind Marmot Dam sat nearly a million tons of silt (Stillwater Sciences, 2000). In 2000, fluvial geomorphologists found it very difficult to project with confidence what would happen to that silt after dam removal (Grant, 2012). If the dam was removed slowly, over the course of two working seasons, they feared that during the intervening winter, the dynamic slopes of Mt. Hood would replace any silt that had been dredged out (Esler, 2012; Keil, 2011; Plaeger, 2012). But with a more aggressive “blow and go” approach, demolishing the dam in a single season, the silt release could possibly do severe ecological damage as it flushed downstream. Worse than either concern, though, was the possibility that the silt might fail to flush out at all. Stakeholders were haunted by the thought of an unstable (and uncontrollable) silty mass plugging the river, raising turbidity and barring fish passage and potentially collapsing at some unchosen date (Heintzman, 2012). Politically, the silt was a relatively simple challenge – everyone wanted it gone – but the models available in 2000 were not sufficient to make a solid decision. It was difficult for PGE to move forward with the decommissioning without a strong sense of what the river might look and act like afterwards.

In the winter of 2000-01 a lahar (a large flow of volcanic debris) from Mt. Hood fortuitously dumped over 750,000 cubic meters of material into the Sandy (Braudrick & Vick, 2001). Lahars are normal (if dramatic) events on geologically lively Mt. Hood. While there was some damage to Bull Run’s infrastructure (Kirkendall, 2011),

the river consumed the lahar without much incident (Athman, 2012). This was an encouraging sign – as some said, the river is called the Sandy for a reason (Prather, 2012; Burchfield, 2012) - but there was still concern (Braudrick & Vick, 2001). There is no political blame or responsibility for a lahar.

Roslyn Lake

The fate of Roslyn Lake, the forebay for the Bull Run powerhouse, was more politically vexing. The lake was the primary locus for the Sandy-area community's interaction with PGE and its Bull Run project. The lake was in no way a natural feature – it had previously been a meadow, which PGE turned into a forebay by raising berms on all sides and diverting in water (Portland General Electric, 1999). Since 1957, PGE had maintained a park around Roslyn Lake, providing cheap (\$3 on weekends, free on weekdays (Esteve, 1999a)), publicly accessible flat-water recreation and rainbow trout fishing (“Catch all you want at Roslyn Lake,” 2008; FERC, 2003; Jones, 1998a) There was an annual Polar Bear Swim (Eno, 2007). The lake received up to 60,000 visitors in the summertime (Trevison, 2005). Many in the community saw Roslyn as a natural area (Heintzman, 2012; Esler, 2012; Reese, 1999).

Two weeks after the decommissioning announcement, the Sandy City Council discussed their concern over the future of Roslyn Lake and their intention to be heavily involved with the future of the lake (City of Sandy, 1999). While the editors

of the local *Sandy Post* and the *Portland Oregonian* both supported the removal decision, and so did the Sandy River Basin Watershed Council, all community interests wondered about the future of the lake (Editor, 1999a, 1999b; McMullen, 1999a). Roslyn groundskeeper Caddy Grantz suggested that the community would “throw a big old fit” (Esteve, 1999a).

When PGE and the regulatory agencies held public meetings to share information and give local people a chance to express their views, they found that Caddy Grantz was right. The meetings quickly grew heated (Reese, 1999; Rowley, 1999). As the *Sandy Post* put it, “PGE (took) a punch from local residents” (Lewis, 1999b). People decried the speed with which the decision was being made, expressing a sense of voicelessness and asked whether there was some way to keep the lake without the dam (Austin et al., n.d.; Editorial, 1999b). The agencies, environmentalist and recreationists might be excited about the dam removal, but “Area residents’ reactions...varied from poker-faced to enraged” (7/7/99). “This whole community seems to revolve around Roslyn Lake,” said Norm Brill of Sandy (Lewis, 1999b). People waxed nostalgic about the centrality of the “pristine lake” (Rowley, 1999) to the community and worried about the wildlife that lived in and around it (Lewis, 1999b). Rick Buhler, representing a group called the Bull Run Community Planning Association, also worried about the loss of small streams and the decommissioning’s impact on old growth trees in the area (City of Sandy, 1999). Overwrought letters to the editor flew in, saying that, “it would be impossible to imagine life without Roslyn

Lake,” and warning of a dust bowl spotted with tree stumps (Reese, 1999). The most telling rhetorical blow was dealt by ten year-old Molly Courtney: “If you want to hurt hundreds of little children’s feelings, then go ahead and do it” (Lewis, 1999b).

The people attending the meeting were concerned about losing their lake, but they were also dubious of PGE’s motives, and of the role of the city of Portland. One attendee asked whether there was some sort of cover-up, if it was about economics or fish runs, or something else (McMullen, 1999c). Those who spied the hand of the city of Portland behind it all worried about a water rights grab by the growing city (Esteve, 1999b; Lewis, 1999b; Merlich, 1999). PGE held more meetings in September 1999 to further work with the community’s views. The consensus seemed to be that people wanted the lake to continue as a park and wetland habitat, but there was no clear path to keeping water in the lake (McMullen, 1999c).

Lurking beneath Roslyn Lake was a related issue: groundwater. There were no homes on the lake’s shore, which would have made a tricky political situation trickier for PGE, but there were up to 58 wells around the Bull Run area that might be affected by changing groundwater dynamics (Cox, 2000). What would happen, and what response would be appropriate? It seemed unlikely that any wells would actually run dry (in the end none did), but in 2000 it was difficult to know (Heintzman, 2012). PGE, with its senior water right, was not legally responsible for the water in private wells, but it was prepared to provide bottled water (and perhaps a “city” of porta

potties) to be on the safe side (Heintzman, 2012). This was clearly not a durable solution. Roslyn also served as the primary water source for part of the Sandy Fire District. This issue was easily addressed by connecting to Portland's system (FERC, 2003).

The alarmed defenders of Roslyn Lake constructed phone trees (Esteve, 1999a), held forums (McMullen, 1999c), and formed an advocacy group called the Keeping Water in the Lake Committee (Irving, 2000a). One Committee member stated optimistically, "There will be a lake there. How that's going to finally work out, I don't know." (Irving, 2000a) They hoped that the city of Portland, with its enormous water rights in the Bull Run basin, might be open to diverting enough of its water to keep the lake topped up even after the dams were gone. They also suggested digging a smaller, deeper, spring-fed lake (Esteve, 1999c).

A chastened PGE moved to explore ways that Roslyn might be saved. In April 2000, PGE held another meeting to take comments and further explain their position, saying that they were eager to preserve the lake if possible (Irving, 2000a; McMullen, 2000a). That summer, they began to look into the possibility of preserving a smaller lake, perhaps 50 acres instead of 160 ("PGE puts together site assessment of lake," 2000). But this proved challenging – there had never been a natural lake at the site, and the ground was porous: five to seven cubic feet of water seeped out of the lake and into the ground every second (FERC, 2003). Russell Plaeger (2012) of the Sandy

River Basin Watershed Council calls the lake “a leaky bathtub.” No supplier was found to keep it full of water (Esler, 2012). The lake needed a manager as well as water – Clackamas County Parks was mooted as a possible future park operator, but it lacked the necessary revenue (McMullen, 2000b). PGE made the lake available to any other user willing to maintain it, but no such body arose.

The *Sandy Post* editors, reflecting on the furor, astutely identified the crux of the problem: “the company owns Roslyn Lake, which has seemed like a public place, but, in reality, never was” (Lewis, 1999a). This was echoed by John Esler, who said that he couldn’t “see how our decision is at all going to be influenced...we’re not asking for input. We really don’t have any choice” (Esteve, 1999a). Esler (2012) later noted that Westerners love to have their say – look at all its many ballot measures – but they couldn’t do that here. The historic and nostalgic role of the lake was not PGE’s responsibility, and while the lake proponents were listened to sympathetically, they were not, in the end, given a seat at the negotiating table (Keil, 2011; Esler, 2012). Oregonians, the *Sandy Post* observed, were unwilling to pay the levies for public parks, but if they relied on private facilities like Roslyn Lake for their recreation, they were setting themselves up for disappointment (Lewis, 1999a).

By the end of 1999, the dam removal was rated one of the biggest stories of the year by the *Sandy Post* (McMullen, 1999d). The community’s anger helped drive PGE’s decision to slow down the removal project. In the summer of 2000, when the

announcement was made that PGE would step back and reconsider its options, the *Sandy Post* headline was “Roslyn Lake gets reprieve from PGE” (McMullen, 2000b).

The Fish

The third and most difficult challenge for stakeholders was the management of fish runs. Marmot dam separated hatchery fish, which anglers can harvest, from the genetically pure and federally listed wild fish in the upper river. On May 30, 1999, Bill Monroe of the *Portland Oregonian* laid out the decommissioning’s fish issues in a perceptive passage worth quoting at length:

Depending on your politics, it's:

- a) An extraordinary opportunity to help restore threatened wild steelhead to one of Oregon's most pristine watersheds.
 - b) A masterful public relations move that saves PGE a bundle.
 - c) A diversion by Erik Sten and the city of Portland of public attention away from more gnarly urban threats to salmon and steelhead. This makes the city look good without risking a single hard feeling from constituents washing their cars with the river's water.
 - d) A threat to Republicans in the Northwest congressional delegation who are fighting tooth and nail to keep all dams intact.
 - e) An enigma for the Oregon Department of Fish and Wildlife, which recently drafted a comprehensive plan for the Sandy's wild salmon and steelhead based on Marmot Dam's ability to intercept pesky hatchery fish and keep them out of the basin.
- All of the above? Or how about: f) A potential kick in the teeth to Portland steelhead anglers.”
(Monroe, 1999)

Debate over hatchery and wild fish in the Sandy had gone on for years prior to the Bull Run decision (Monroe, 1997). In 1997, ODFW began to mark 100% of hatchery

fish by clipping their adipose fins,¹⁴ the better to ensure their exclusion from the wilder upper river (ODFW, 2011a, 2011b, 2012, 2013; Alsbury, 2012). Around this time, an updated Sandy River Basin Fish Management Plan was formulated that incorporated the Marmot Dam as a sorting mechanism. When PGE announced its intention to remove Marmot, it jarred the fishing stakeholders who had worked on the plan (Glass, 2012; Ritchie, 2012).

The fishing industry, from guides to tackle shops, depended on a harvestable fishery. Anglers must catch and release any wild fish they hook, but can take home hatchery-raised salmon, to mount above the mantelpiece or to eat for dinner (Jensen, 2012; Glass, 2012). This makes more money for salmon fishing guides in the Northwest – Jack Glass (2012), a longtime guide and member of the board of ODFW’s Fisheries Restoration Enhancement Program, makes the distinction that salmon are seen as food, and that when people catch a salmon, they intend to eat it, which they might not if they were fishing for, say, brown trout in the Rocky Mountains. Stocking summer steelhead ensured a year-round harvestable fishery (Ritchie, 2012). The Association of Northwest Steelheaders and the NSIA, not to mention local outfitters and guides, wanted the year-round harvest, and would not support a dam removal plan unless it included some assurance that they would still be able to harvest fish; they lobbied hard to retain some sort of separating mechanism in the Sandy (Glass, 2012;

¹⁴ This is the fin low on a fish’s back. Its removal is standard in salmonid marking. It is thought not to be important for swimming (Vander Haegen, Blankenship, Hoffmann, & Thompson, 2005).

Hamilton, 2012). In 1999, the Steelheaders, which had a long history of active restoration efforts in the Sandy Basin, announced that it opposed removal because of the dam's important management role (Monroe, 1999). For the fishing community, the looming fear was a fishing ban on the entire river, leaving destitute fishing guides and furious anglers (Brinckman & Irving, 2000). Without the dam, what kind of sorting mechanism would be possible?

On the other side, the goal of groups like Oregon Trout and the Native Fish Society was to promote and preserve wild, native runs, arguing that the endangered fish and the river in general would be better off, in the long run, with no hatchery fish at all (Esteve, 1999c). Caught in the middle were the agencies, NMFS and ODFW. NMFS was more enthusiastic about wild fish but was willing to accept more hatchery stock, while ODFW, which has a mission to support Oregon's fish and fishers alike, operates the Oregon's hatcheries (Monroe, 2000; Alsbury, 2012; Prather, 2012). Split missions inevitably cause divisions in agencies. The case of Marmot Dam was no exception (Kern-Korot, 2012). It is notable that ODFW is partly funded by fishing license sales, so impacts on recreational fishing redound onto the agency. This opens ODFW to accusations of greed and mismanagement by wild fish activists (Bakke, 2001; Bakke, 2012). Complicating the matter, PGE helped fund ODFW's Sandy hatchery as part of mitigation for its riparian impacts, but that funding would cease with the project (Esler, 2012; Esler in City of Sandy, 1999). NMFS suggested building a weir at the dam site (Tehan, 2013), but PGE was loath to remove one dam

and then, essentially, build another one (Esler, 2012; Keil, 2011).

The decommissioning plan came up as the Sandy's hatchery fish were under pressure from other quarters. In 2001 ODFW released a plan, publicized in local newspapers, to eliminate stocking of summer steelhead and to dramatically reduce Coho salmon and winter steelhead releases; smolt releases would drop from 1.465 million to 310,000-660,000(O'Dell, 2001a). These changes to the fishery would affect many people in the Portland-area fishing business: according to the NSIA, the Sandy saw more than 42,000 fishing trips per year and contributed \$4 million to the fishing economy (Irving, 2001). Local guides and tackle shop owners complained that this plan would hurt them badly (Irving, 2001a). ODFW, again, found itself in an awkward position: one ODFW biologist who attended public meetings recalls law enforcement officers worrying aloud that they didn't have enough bullets to protect him (Muck, 2012). Leading fish industry representatives Richard Allen and Debbi Schneider urged the restive crowd to show some respect, but they were angry too (O'Dell, 2001b). Allen said of the fishery, "it's ours and we'll fight to the death for it. I'll take it to Washington. I'll take it all the way." Letter-writing campaigns followed and petitions circulated among those hoping to keep their harvest fishery (Cox, 2001). At the same time, the exchange of views that took place in these meetings did move the issue forward, and ODFW agreed to cut down on some of its hatchery programs without eliminating any, by way of encouraging compromise in the Sandy (Muck, 2012).

But all of this was so much sound and fury without a decision on what would happen to the dam, the “linchpin” of the river and its fishery (Sandy Post, 2001). As with Roslyn Lake, PGE had no desire to hurt the Sandy River fishery, and the utility was amenable to working with ODFW, NMFS, and fish interests to find an acceptable management plan. But how this would work without a dam or a weir was uncertain. Fishing guide Brian Silvey put it best: “On one hand, get rid of the hatchery fish, and the river’s toast. It’s gone. On the other hand, I think you’ve got to protect the wild fish. It’s a tough one” (Irving, 2001b). The question even affected the sedate fishing of Roslyn Lake, as excess steelhead were sometimes put in the lake in an effort at “recycling fish” (Ewing, 2002).

At the heart of the issue was (and remains, in rivers across the Northwest) the definition of a wild salmon. The same species of salmon will vary from stream to stream – this is part of why NMFS lists them by Evolutionarily Significant Unit – and will behave differently under the pressures of life in a hatchery, associating shadows in the water with food, for example, rather than with predators (Stickney, 1994). But at the same time, to a delighted weekend angler, a Coho from a hatchery looks and tastes much the same as one from an upstream redd. To Bill Bakke, if you opened habitat and put the wrong fish in there you’re wasting your habitat and holding back the restoration of the wild run (Bakke, 2012). But in the interim, what are fishing guides to do on a river containing far fewer fish? While science is crucial to issues

like this one, emotional reactions drive perceptions and politics. Bakke recalls receiving a phone call asking him why he wasn't upset that Caspian terns were eating native salmon near the coast. He had to explain that Caspian terns are native to North America, despite the fact that they are named after a salt lake in Asia (Bakke, 2012).

A less politicized but potentially weighty issue rose during this time – the city of Sandy's water right (Lazenby 2012). If PGE decommissioned the Bull Run project and converted its senior 800 cfs water right to in-stream flow (which environmental groups hoped it would (City of Sandy, 2002), the city's water might be in jeopardy. In the summer months, the Sandy often flowed at less than 800 cfs. At such times, to maintain that 800 cfs in the stream, the city might not be allowed to withdraw any water. Eventually, the wary city council negotiated a deal whereby they could keep their water, with an ironclad claim to 16.3 cfs, the amount deemed necessary within city limits (Lazenby, 2002).

Working Against a Deadline

Between 2000 and 2002, the city of Portland separated from the process; the Clinton Administration was making way for the Bush Administration and Bush's NOAA was far less zealous in its enforcement of the Endangered Species Act, releasing some of the pressure on the city to mitigate for its impacts (Sten, 2013). Governor Kitzhaber's \$10 million in state money, never firmly promised, disappeared. A more locally-focused process remained. PGE was left entirely responsible for funding the Bull Run

decommissioning. It is worth noting, though, that the Sten-Kitzhaber combination created a climate in which the city and the state looked kindly on dam removal, and wanted to see PGE's decommissioning effort succeed.

For most of 2001, the issue quieted down – Marmot Dam does not appear in the Sandy City Council meeting minutes at all in that year – as PGE sorted out its next move. There was the perception by some stakeholders that PGE dropped the metaphorical ball during this time (Young, 2012; Gray, 2012), but PGE indicated that it was busy planning throughout (Heintzman, 2012). By February 2001, the price of energy had risen much higher than its 1998 level (Irving, 2001c), but PGE's notice of surrender was irrevocable no matter how much value the project provided (Keil, 2011).

In January 2002, PGE restarted negotiations, convening a diverse working group of 23 organizations. The group included every user or authority on the Sandy River, from the city of Sandy to the Oregon Governor's Office to American Rivers to Alder Creek Kayak Supply. The environmental groups were a political mosaic. Bill Bakke of the Native Fish Society notes that the Portland environmental community relies on one another for expertise in their various specialty issues, and is well accustomed to working together (Bakke, 2012). Moreover, many of the groups and individuals involved had worked together to manage Oregon's lands and waters before and enjoyed a certain level of familiarity already. Keith Jensen, for example, owned Alder

Creek and was also on the Waterwatch of Oregon board. He was familiar with American Rivers, American Whitewater, and Bill Bakke.

Reflecting on the lessons of the first round of negotiations, PGE decided to use a different approach, hiring a neutral mediator, Debra Nudelman of RESOLVE, to facilitate the negotiation. Nudelman received widespread credit for her work on Bull Run (Keil, 2009; Young, 2011; Heintzman, 2012; Jensen, 2012; Muck, 2012; Lazenby, 2012). Her skillful approach likely made the difference between success and failure – between a thoroughly planned and managed removal and an orphaned hydro project. She was goal-oriented, kept diverse stakeholders looking in the same direction, and, crucially, formed subgroups with the skills and regulatory responsibilities to overcome the technical challenges (Kucas, 2012; Lazenby, 2012; Plaeger, 2012). These groups acted like “buckets” (Nudelman, 2011) into which stakeholders threw their needs, perspectives, and expertise on each particular issue. In this round of negotiations, it was decided to assemble mid-level staff with real decision-making power. Keith Kirkendall of NMFS identified this shift as a key to success (Kirkendall, 2011). All of this made for a smoother process (Athman, 2012).

The working group that Nudelman led created a new political venue where all participants were in some sense equal. Nudelman’s neutral oversight and the uncertainty over what would occur in the case of an orphaned project leveled the playing field. The venue was one where no one was in position to lose, as they would

be in the face of a new law or a regulatory or legal decision. It is also notable that stakeholders did not appeal to the public, and that there was very little coverage of negotiations during most of 2002 in the *Post* or the *Oregonian*. This likely served to keep the work at a low level of politicization. While there was no pretense that mandatory authority and FERC deadlines did not exist, the space the working group afforded stakeholders allowed them to solve problems in an efficient, collaborative manner.

The experience of 1998-2000 had given the stakeholders a good idea of what issues they were facing and what could be done to handle them. This meant that the subgroups were able to get to work relatively efficiently. The group enjoyed a good deal of camaraderie, and after the final agreement participants gave one another whimsical awards honoring individuals' particular contribution to success (Muck, 2012; Plaeger, 2012). The only oddity in the group was the dual role of John Esler – he served on Oregon's Fish and Wildlife Commission as well as working for PGE – but while everyone was aware of this, there is no indication that it disrupted the process (Burchfield, 2012; Esler, 2012).

Bull Run's expiring license meant that the group was working against the clock – the decision had to be made by November 21. In 10 months, the group hammered out an agreement to remove Marmot Dam, Little Sandy Dam, Roslyn Lake, and the Bull Run flumes and infrastructure. As part of the agreement, PGE would run the project

for an additional five years. This would allow stakeholders enough time to change fish management, decide the future of Roslyn Lake, model the movement of silt, and let PGE build up revenue to pay for the decommissioning and take the time to plan the utility's post-Bull Run operations. The funds for removal came from PGE's ratepayers (Heintzman 2013). With all stakeholders united in favor of dam removal, the process moved quickly (Mitchnick, 2012). On November 12, just before the deadline, PGE sent FERC its application to surrender the Bull Run license.

Moving the Silt

The million cubic-yard plug in the Sandy River frightened fish interests and intrigued scientists. No one had released this much silt before (Major et al., 2012). They wondered, “will it barge through the river like a pig in a python, or melt slowly like an ice cube?” (Trevison, 2003). There was the possibility of dredging the silt out before dam removal, but that would be expensive and laborious (Trevison, 2003; Kern-Korot, 2012). One cause for hope was that as a diversion dam, Marmot had always moved fine sediment – the most problematic material for ecologists and engineers – along downstream, making a relatively sandy and unconsolidated silt load that was more likely to move easily (Esler, 2012; Grant, 2012).

The situation was complicated somewhat by the Sandy's sensitive ecology and listed fishes – NMFS wouldn't allow engineers to keep a partial dam in the stream over the course of two years (Grant, 2012). PGE hired Stillwater Sciences to study the silt's

composition and model its movement after Marmot was gone. The work included an operational physical model of the removal site, constructed in the well-respected St. Anthony Falls Laboratory, Minnesota. PGE made an effort to support a strong team of scientists and ensure that the model of silt movement would be as accurate as possible (Major et al., 2012). The company receives credit for this commitment to good science from many stakeholders (Pagel, 2011; Swift, 2011; Athman, 2012; Grant, 2012; Kern-Korot, 2012). The scientists worked together smoothly during the process – Gordon Grant describes the process as “collegial and congenial” (Kern-Korot, 2012; Grant, 2012). As Julie Keil said, “I like making scientists happy” (Keil, 2011). The model also helped the rest of the coalition work forward. Deb Nudelman notes that visualization, especially of the sediment, was a powerful way to help nervous stakeholders feel comfortable about dam removal (2011).

Stillwater’s models indicated that the silt would erode away relatively quickly and that the structure of the reach behind the dam would be in a comparable state to adjacent reaches within 5-10 years (Major et al., 2012). This allowed the working group to proceed with confidence (Grant, 2012). The entire geomorphological project offered the opportunity to push riparian science into the future: According to geomorphologist Gordon Grant, “We joke that the river science community would probably buy tickets just to get to watch it” (Trevison, 2003).

Negotiating Roslyn Lake Away

Public resistance to the draining of Roslyn Lake had faded by 2002. While the sentiments remained (a 2010 study found disgruntled people in Sandy after the dam removal (Austin et al., n.d.), there was essentially no grassroots challenge to the removal. The Keeping Water in the Lake Committee does not appear in the *Sandy Post* or the *Portland Oregonian* after 2000. Pleas to save the lake remained (Janssens, 2007a; Roper, 2008), but they came to nothing.

This successful diminution of the issue came through PGE's straightforward approach and its hope to keep the Roslyn area for public recreation (Plaeger, 2012; Lazenby, 2012). PGE's public outreach might have been awkward initially, but after a series of meetings and public attempts to identify methods to retain the lake, no one who was involved in the issue could doubt that all options had been tried. The utility would not turn the park over to the several potential buyers who wanted to log it (Esler, 2012). PGE spokesman Mark Fryburg, reviewing PGE's efforts, noted empathetically that the people of PGE enjoyed Roslyn Lake, themselves, and would miss it too (Trevison, 2007e). At the end of the process, PGE held farewell events at Roslyn, offering free park access and hot dogs, and tours with a public historian (Trevison, 2007b). As the lake shrunk down, people were encouraged to catch all the rainbows they wanted – a near-literal example of fish in a barrel ("Catch all you want at Roslyn Lake," 2008).

Some of the fear on the part of the community was not just that the lake would disappear, but that the Roslyn Lake Park site would be logged and developed (Janssens, 2007b; Rowley, 1999). PGE, however, had long declared its intention to maintain the site for recreation (Esteve, 1999a). While Austin and colleagues found some who felt that they had not had a voice in the decision (Austin et al., n.d.), public meetings allowed enough people to express themselves and have their feelings incorporated into consideration that the issue did not reach critical mass. When the final agreement was signed, Sandy city manager Scott Lazenby informed the city council that they could not keep the lake, but they would keep the recreation (Woods, 2002). The only question was what sort of recreation that might be.

Partly to mitigate for the loss of wildlife habitat that went with the loss of Roslyn Lake, PGE donated 1,530 acres up and down the Sandy Basin to an organization called Western Rivers Conservancy. Western Rivers will incorporate them into a growing conservation area in the Sandy Basin. This parcel will eventually transition to public low-impact recreation land under the jurisdiction of the Bureau of Land Management, which owned the land under the actual dam (FERC, 2003). It is common to include a third party when transferring land to the federal government (Prather, 2012). Ultimately, these lands will be part of a large Area of Critical Environmental Concern land in the Sandy Basin (Kling, 2012). Such status forbids extractive uses on protected land.

The issue of the wells and Roslyn Lake's groundwater eventually evaporated, but it provides an illustration of the ancillary impacts of building a dam. As Mark Fryburg put it, "We supplied a free benefit from the lake that was tied completely to us operating a power plant. They (the homeowners) will have to access the natural water table once the hydro project stops operating" (Trevison, 2007f). Homeowners complained that when they bought their homes they were not aware that their wells might rely on a privately-operated forebay but this, of course, was not PGE's responsibility (Trevison, 2007f). The company worked with Bull Run Community Planning to see if grants might be available for re-drilling wells, but there was no intention of compensating anyone (Trevison, 2008). This dilemma did keep PGE Project Manager Dave Heintzman awake at night (Heintzman, 2012).

The dams' physical location, remote from the lake, may have been important (Young, 2011; Austin et al., n.d.). Marmot Dam was separate from the consciousness of anyone who wasn't involved with Sandy River salmon – it did not form the lake directly and so it seemed feasible to keep it full without Marmot Dam. While this disconnection between dam and lake might have complicated discussions to some extent, it may have worked in favor of dam removal. A dam that visibly, directly serves as the guarantor of a community's weekend recreation might rally people to save it, but at the same time, the disappearance of Marmot Dam did not mean the disappearance of Roslyn Lake, and so dam removal was more palatable. People looked to replace the dam's diversion functions, but not necessarily keep the dam.

Roslyn Lake presents a paradox. While the lake was an engineered component of a privately owned power-generation project, its effects were largely public. During the decades of its existence, the lake offered an array of public uses – fire suppression, groundwater, recreation – in exactly the same way that a natural lake would have. In this sense it is only reasonable that the citizens of Sandy would have interacted with it as a natural lake and created emotional ties as people do to any enjoyable recreational landscape. Even PGE customers would not necessarily have connected the lake to power production. This sort of paradox is likely found in nearly any artificial impoundment near human population centers. Had the people of Sandy been angrier about the demise of the lake, had some of them owned lakefront property, had they formed a stronger advocacy organization with a creative, motivated leader, the course of the negotiations over the Bull Run project might have been quite different. Even years after Roslyn Lake was gone, “most residents do not recognize PGE’s right of ownership” (Austin et al., n.d.).

Managing the Fish

This most politically challenging part of the issue yielded a complicated and unstable compromise. The hatchery/wild situation was resolved through creative scientific management, a shared desire to improve and restore Sandy River salmonids, and fear from both sides: environmentalists worried that they might lose a major dam removal, and sporting interests worried that they would lose a major fishing destination (Muck,

2012). Thus motivated, they tackled the issues.

Up until 2002, hatchery fish had been released at the Marmot Dam site, ensuring that they would return to that same site to be caught and separated before they managed to ascend the fish ladder. Without the dam, it was clear that these fish, especially Chinook, which stray more, would stray beyond the former dam site and into the upper basin. The working group agreed that ODFW would attack this problem by replacing the out of basin Chinook the hatchery had released previously with Sandy River fish (Esler, 2012). They also released fish lower in the basin, in a creek that allowed them to imprint with different water chemistry (Alsbury, 2012; Trevison, 2007a). This was one reason that dam removal would have to wait until 2007, when the last cohort of fishes to be released at the dam site would have returned. Juvenile summer steelhead would also be released lower in the river, and at such times and in such conditions as to minimize interaction with wild fish (ODFW, 2013). The system the stakeholders agreed upon was expected to result in 10% of hatchery fish straying into the upper basin (ODFW, 2011a). This seemed as though it might be realistic without putting wild DNA in undue jeopardy.

PGE committed to monitoring river conditions as the silt moved, and implementing contingency plans if anything went wrong – the silt creating a fish passage barrier, for instance (Heintzman, 2014; FERC, 2003). In the end, all actors in the fishery issue hoped to gain better fish habitat and larger fish populations. As watershed council

member George Hoyt said, “Who wouldn’t want salmon swimming and spawning in the creek in their own back yard?” (“\$45,000 grant will help council improve salmon habitat in creek,” 2002). Stakeholders agreed to the classic political compromise – an agreement that made no one entirely happy – as the best way to reach their shared goal. To this day, there are some who harbor regrets about not holding out for a weir (Glass, 2012).

Out of the fish debates arose some structures to facilitate political compromise. In 2000, some of the Sandy’s stakeholders, from the Steelheaders to Oregon Trout, formed the Sandy River Partners to provide a framework for themselves to deal with river issues. This was prompted by PGE’s dam removal announcement and by the federal listing of Chinook and steelhead (“Sandy River Basin Partners,” 2014). The Partners engage in restoration and strive to offer a moderate forum for Sandy management questions. There is continuing active restoration work in the Sandy Basin (Mount Hood National Forest, 2014).

Removal

From 2002 to 2007 there was little controversy, but there were some logistical challenges. PGE had to work quickly to obtain a section 404 dredge and fill permit from the US Army Corps of Engineers and a fill and removal permit from Oregon’s Division of State Lands, and to work with NOAA to handle the newly-listed Coho (Keil, 2009). NMFS’ Keith Kirkendall ordered his staff to work hard to ensure that

this wouldn't delay the process (Monroe, 2007) and Esler (2012) asked PGE's consultants to write the draft biological opinion quickly and ensure that the work was done. The Army Corps wanted 1-1 mitigation for the removal of the Roslyn Lake wetland (Keil 2011), but John Esler noted that PGE had not removed a wetland, only drained the artificial lake. However, they waited until the wet land underneath dried up on its own before regrading the area (Esler, 2012). All permits secured, work began in 2007. The silt load was used to build up a cofferdam, which allowed for dry working conditions at the dam site, and the actual removal began in July. To prepare for the immediate impact of the silt release, ODFW held a "salmon rodeo" (Trevison, 2007d). Agency personnel gathered all the fish at the dam site and put them in the hatchery, safely away from the silt blast.

PGE strives to be a good corporate citizen and environmental steward, "the green company" (Athman, 2012; Lazenby, 2012; Kirkendall, 2011; Muck, 2012; Nudelman, 2011). This is partly because of their identity as a "cute old" Portland, Oregon-based company (Esler 2012) and partly because they must be keenly aware of looming public power – they live in a world where they need to be "good corporate citizens" (Jensen, 2012). The utility's green energy projects are featured in local newspapers, and its employees are lauded for volunteering in the community (for example, "PGE employees earn grants for groups," 2003, "Portland General Electric becomes an independently owned company," 2006; Van Fleet, 2008). While PGE was occasionally cast as a corporate villain, as in the Roslyn Lake issue (Trevison, 2007a),

the local nature of the company made it something of a neighbor as well.

So it was not surprising that PGE and the other stakeholders built the Marmot removal into a media event. Time-lapse cameras recorded the event and immortalized it for YouTube¹⁵ (Kirkendall, 2011). As the cameras rolled, CEO Peggy Fowler pushed a plunger and the top of the dam exploded in a cloud of smoke. This was slightly dramatized – the explosion was actually triggered by a demolition professional standing behind Fowler, and the blast, unimpressive on its own, was embellished by some sort of powder – possibly kitty litter – scattered on top of the dam (Kober, 2012; O’Keefe, 2011; Kirkendall, 2011). But PGE had worked hard to make the removal happen, nearly everyone felt that it was a triumph, and there were no objections to a larger explosion.

The concrete of the dam was mostly rendered into rubble for a new road accessing mountain bike trails at the former dam site (Kling, 2012). This area is popular and, in the view of City Manager Scott Lazenby, provides a nice public resource (Lazenby, 2012). A little of the dam became “souvenir bits” for onlookers (Kober, 2009; Trevison, 2007b). Some of them are displayed in stakeholders’ offices to this day. This trophy-making is a relatively common feature of dam removals – Bill Bakke has a pencil made of Edwards Dam (Maine) wood. PGE also worked with filmmaker Jeff Gersh and National Geographic to create a movie about the dam removal and the

¹⁵ <https://www.youtube.com/watch?v=CaNb2wouYUk>

Sandy River (Gersh, 2008). All of this served to further establish PGE as the “good guy” among utilities (Nudelman, 2011).

The concrete dam was gone that summer, but the crux of the removal came three months later, when the silty cofferdam came out. As noted above, the models were promising, but the models were not the Sandy River, and no one knew what would actually happen to the million tons of silt. The plan was to cut a notch in the cofferdam and let the river blast the silt away – but this required high flows. The group decided to wait for a large storm on Mt. Hood to provide these flows. On October 19, after a very tense wait, the storm came and the notch was cut (Gersh, 2008). The next morning, when geomorphologist Gordon Grant came to inspect the dam site, he was exuberant to find that the cofferdam had vanished and the river had excavated an enormous amount of silt – much more, much faster, than anyone expected (Grant, 2012; Alsbury, 2012). Some 200,000 tons of material, a fifth the total load, was excavated in the first 48 hours (Parks, 2009). Two days later, when John Esler made a discreet visit to some downstream fishing holes, the anglers there told him that fishing was fine (Esler, 2012). The Sandy River had simply absorbed the silt. By 2012, 50-60% of the silt had eroded downstream, with much of the rest of it resting on the terraces above the river, out of circulation (Grant, 2012). Coho salmon swam above the dam site the next day (Zauner, 2012).

The next summer, with minimal disturbance, fifteen-foot Little Sandy Dam came out,

and Roslyn Lake was drained. The Sandy and Portland newspapers ran wistful articles about the last days of the lake (Hatchcock, 2008; Trevison, 2007f, 2008). Sandy Mayor Linda Malone wanted aerial photos of the lake site, before and after, draining, for the historical record (City of Sandy, 2007). The old Bull Run Powerhouse has been bought by a private consortium, which may develop it as a historic museum (Smith, 2012). In 2009, the facility was featured in a project called “Art contemplates industry,” a creative reexamination of the Northwest’s recent past (10/1/09).

In the absence of an operator to make the lake site into a public park, the land will maintain its recreational role by become a resting facility for the elephants of the Portland Zoo, which benefit from time away from the crowds in the city (Sandy Area Chamber of Commerce, 2013; Esler, 2012; Lazenby, 2012). The old tunnel that had guided the flume through the hillside is envisioned as bat habitat (Lazenby, 2012; Cornforth Consultants & Crockett Environmental, 2005). The exposed silt that now makes up the Sandy’s riverbanks turned out to be full of alder and willow seeds, obviating the need to actively plant these trees (Esler, 2012). In the Sandy River, the returning fish are brooding longer over their redds than they had in the past, while the Little Sandy, dewatered for decades, has seen immediate returns of Chinook, Coho, and steelhead (Arendt, 2012). There is hope that the wild fish population in the upper Sandy might triple or quadruple in the future (Alsbury in Trevison, 2007a).

As part of the surrender, PGE monitored revegetation and noxious weed control, turbidity and sediment movement (with regard to fish passage and habitat), and the transformation of the Roslyn Lake wetlands, submitting annual monitoring reports to FERC for five years (Heintzman, 2014). Habitat requirements were overseen by the Monitoring Implementation Team of NMFS, ODFW, the US Fish and Wildlife Service, and PGE biologists (FERC, 2003). In 2014, all monitoring requirements were fulfilled, and FERC signed off on the end of the project, the license surrender, process, and PGE's responsibilities in the Sandy (Heintzman, 2014). The "contingency triggers" where PGE would have had to take action (such as emergency fish rescue) in case of significant adverse effects post-removal, never occurred (Heintzman, 2014). Resource and land agencies are monitoring salmonids and other ecological changes as part of their overall responsibilities in the basin.

The fish management issue lingers on. Despite the management changes, hatchery-bred spring Chinook are straying above the former dam site in greater numbers than projected (Alsbury, 2012). The Native Fish Society dropped out of the agreement to maintain their ability to file suit (Ritchie, 2012). They have recently filed an injunction against NMFS and ODFW, saying that Sandy River Hatchery operations violate the Endangered Species Act (Native Fish Society, 2014). In 2013 a federal judge ruled that ODFW may still release hatchery Chinook, but a reduced number of them: 66,000 spring Chinook instead of the 200,000 that had been planned (Learn, 2013). With the removal of Marmot Dam, the fish can now "migrate from the Pacific

all the way up the slopes of Mount Hood” (Fryburg in Trevison, 2005), but what kind of fish, and how they’ll be managed, remains a political and ideological question.

Conclusions

The Marmot Dam removal, despite divisions among its stakeholders, did not turn into an antagonistic competition between coalitions, and the dam removal occurred less than ten years after the idea was first raised. This is because no stakeholders’ values or core beliefs were contrary enough to overturn the idea of dam removal – the overall question for much of the time was not so much *whether* to remove the dam, but rather *how* to go about it best. The issues of Roslyn Lake and fish management created tension within the group but did not create significant opposition to the dam removal. Stakeholders attacked problems rather than each other and facilitated a relatively efficient process. Analysis, then, must focus on what didn’t happen as much as on what did.

Other major dam removal negotiations quickly become adversarial because stakeholders differed over core or ideological values, which cannot be easily negotiated, and because they failed to account for one another’s perspectives. They resolved when the dam retention advocates exhausted their tactical options and received some substitution for their accustomed river uses (sometimes referred to as being “made whole”), allowing for the creation of a mega-coalition that was sufficiently broad and deep to secure political support and funding. This was only

possible after many years of expensive conflict drove the sides together.

The primary reason that this did not happen was PGE's leadership (Tehan, 2013; Grant, 2012; O'Keefe, 2011; Kirkendall, 2011; Swift, 2011). The dam owner provides the natural base on which an anti-removal coalition might build. The fact that PGE suggested and then vigorously pursued decommissioning and dam removal meant that any political challengers to the removal plan would lack a crucial ally.

For John Esler the decommissioning was "a moment of history for the company...Nobody's looking back at the decision – it was the right decision to make – but at the same time, there's the loss of a neat old powerhouse, a neat lake and one of the area's oldest parks" (Hatchcock, 2008). There were some regrets over the end of this "legacy project" (Heintzman, 2012). Julie Keil (2011) noted that while you might expect utility people to be cold and rational about such decisions, this was not the case – they were emotional. At a ceremony two days after the breach, a photo was manipulated in such a way as to make the dam fade into the river. People cheered and clapped, but not PGE people (Heintzman, 2012). The company had taken pride in its management of the Bull Run project. John Esler notes that PGE's fish biologists felt that they had spent their careers making dams work with the Sandy River's fish, and that overall, they had done a pretty good job.

At the same time, though, PGE had built itself into the sort of corporate citizen that

would be seen as likely, even expected, to restore a river. Many stakeholders, veterans of Northwestern river politics, stated that different utilities have different “personalities,” and that PGE is among the best (Gray, 2012; Bakke, 2012; Burchfield, 2012; Kern-Korot, 2012). The utility consistently framed itself as a virtuous citizen of the environment and of the community, as well, of course, as a business that supported its ratepayers. This approach cast PGE as an ally that connected to multiple uses and values – a neighbor and a community member, not just an urban utility. PGE’s actions, before and during negotiations, and in the community, added to its credibility among most users. Kirkendall (2011) employed the metaphor of sitting on the same side of the table, not different sides. Users as contrary to one another as NFS’s Bill Bakke and Steelheader Norm Ritchie praised PGE’s work with the stakeholder group (Bakke, 2012; Ritchie, 2012).

The dam removal plan included enough flexibility in fish management and recreational use of Roslyn Lake to make everyone believe that their goals could be met. Even outside groups like the Keeping Water in the Lake Committee, which was not politically substantial enough to get a seat in Deb Nudelman’s working group, was given many opportunities to engage publically with PGE, to have hear PGE’s position as the property owner explained, and to see that all options for keeping water in the lake had been exhausted without the park site turning into condominiums or clear-cuts. The leadership of Julie Keil was also key. Though there was some blowback from other utilities for not fighting to keep their project (Esler, 2012),

Keil's role won widespread respect. In 2003, she received the Dr. Kenneth Henwood Award from the National Hydropower Association (Nudelman, 2011). Award recipients are expected to display "persistence in the face of institutional obstacles, exhibit fair dealing and plain speaking, and depict an appreciation of the relationships between project engineering, the environment and economics" (National Hydropower Association, 2004).

The only interest groups that might feasibly have stopped the removal process were the supporters of Roslyn Lake (who had very little actionable claim to the lake) and fish or fishing advocates. Neither disgruntled coalition's core values were seriously threatened at any time. PGE and the relevant agencies were very open to maintaining stakeholder uses throughout, and explored a variety of creative avenues to do so. At the same time, PGE also made it clear that their options were limited by economics. This prompted some grumbling but no real opposition – the Bull Run project was PGE's private property, and there was no reasonable argument to give incidental ancillary uses primacy in the decision over how to dispose of the project's infrastructure. The fact that the fish advocates and angling advocates split after the agreement was signed is a testimony to PGE and Deb Nudelman's ability to work effectively with all stakeholders to achieve decommissioning and dam removal. The struggle over hatchery vs. wild fish is part of a larger regional conflict that was present before the removal and remains active in rivers throughout the Northwest. These conflicts are important for regional river management, but are slightly outside

the scope of this work.

Stakeholders often respond to political reverses by expanding the conflict into new venues and incorporating new allies and resources. Such an approach would have led to a dead end in this case. State-level political venues were close by in the cities of Portland and Salem. In neither of these venues, though, were removal opponents likely to find support – Governor Kitzhaber and Commissioner Sten had heartily endorsed dam removal, and while they withdrew from the decision by 2002, it would be unlikely for lake or the hatchery advocates to shift Portland or Salem into opposing dam removal. There were a few exploratory meetings held, with local state senator Rick Metsger (D-Welches) in attendance (McMullen, 1999c), but these, again, did not take on an adversarial tone. Moreover, PGE’s working group was broad enough to already occupy most of the other political venues that stakeholders might reasonably have sought – no-one outside the working group would have had strong grounds on which to successfully sue or lobby legislators. With NMFS, the US Fish and Wildlife Service, and the US Forest Service working on decommissioning, there was no realistic path by which removal opponents might have called upon the federal government.

PGE’s identity as John Esler’s “cute old” Portland company may have worked forwards and backwards – the company’s customers in urban and suburban Portland are “cute,” in the sense of being socially conscious and environmentally caring, as

well. The city of Sandy identifies strongly with its river. While there was some anti-environmental sentiment expressed during the process (Rowell, 2001b), by and large people in the area appear to have been environmentally active, with river cleanups and nature festivals forming regular parts of Sandy's public life (for example, "Winter SH Course at College," 2002; Woods, 2003). There are salmon statues prominently displayed in the town's main plaza.

To many advocates, the Sandy River took on human qualities. To Amy Kober of American Rivers, the issue was about balance and fairness in assessing a river: "I think we're learning how to strike a better balance. There are dams that don't make sense any more, and by removing them, we can have healthy, free-flowing rivers." (Trevison, 2007c). She said,

"we see the Sandy as symbol of our country's changing relationship with rivers. We settled on the banks of rivers so that we could harness their power with dams, but rivers have other powers as well. A free-flowing river has the power to renew our souls" (P. Sherman & Guibord, 2007).

To Keith Jensen "there is nothing more special than a free-flowing river" (McMullen, 1999b). The theme of freedom and release, with the river in the role of a person was a constant. The *Portland Oregonian's* editorial after the dam breaching was headlined "A River Released to the Wild" (Editor, 2007) and the *Sandy Post* editorial after the coffer dam notching proclaimed that the "Sandy River runs free" (Guibord, 2007). The historic resumption of the river's active identity resonates even with scientists.

Gordon Grant said, “We borrowed the river’s energy for a hundred years. We used it to light our house, to run our computers. Yesterday, the river took it back” (Gersh, 2008).

How should we connect the Marmot Dam to other removals? Some on both sides of the debate over dam removal draw connections, hopeful or foreboding, between the Bull Run decommissioning and ongoing high profile debates on rivers like the Klamath and Snake (Kober, 2009; Rowell, 2001a; R. Sherman, 2007). PGE disagrees, saying that this situation was unique and that its good faith effort on the Sandy has helped its credibility and streamlined the process of renewing other licenses on other hydroelectric projects, and made the point that many old hydroelectric projects are productive enough to earn their upgrades and renewed licenses (Esler, 2012; Esler, 2009; Keil, 2009). But of course, both sides are correct. Removals like Marmot Dam have made and are making dam removal into something approaching a routine option for the end of infrastructural life. In addition, knowledge produced by experiences like blowing Marmot’s silt down the Sandy River can inform many future situations. But at the same time, many older hydro dams are indeed productive and worth relicensing – stakeholders have learned how to mitigate fish passage impacts and how to operate dams to produce more natural flows. The Bull Run decommissioning holds lessons for many situations.

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Interviews

Many interviewees changed organizations or played several roles during the dam removal process. The affiliation identified here is their most prominent as it related to the dam removal.

<u>Name</u>	<u>Affiliation</u>	<u>Date</u>
Alsbury, Todd (Phone 12/4/12)	Oregon Department of Fish and Wildlife	3/12/12
Arendt, Kathryn	US Forest Service	3/16/12
Athman, Connie	US Forest Service	1/26/12
Bakke, Bill	Native Fish Society	2/20/12
Burchfield, Stephanie	National Marine Fisheries Service	3/9/12
Esler, John (Email 7/9/2013, 7/19/2013, 4/5/2013)	Portland General Electric	1/30/12
Glass, Jack	Hook-up Guide Service	12/3/12
Grant, Gordon	US Forest Service	3/7/12
Gray, Ann	US Fish and Wildlife Service	2/10/12
Heintzman, David (Email 8/8/2012, 2/25/2013, 4/14/2014, 4/15/2014, 5/6/2014)	Portland General Electric	3/19/12
Jensen, Keith	Alder Creek Kayak Supply	1/25/12
Keil, Julie	Portland General Electric	9/6/11
Kern-Korot, Kammy	Oregon Department of Fish and Wildlife	8/9/12

Kirkendall, Keith	National Marine Fisheries Service	9/2/11
Kober, Amy	American Rivers	11/6/12
Kucas, Steve	Portland Water Bureau	11/6/12
Lazenby, Scott	City of Sandy	2/8/12
Menard, Rosemary	Portland Water Bureau	4/4/13
Mitchnick, Alan	Federal Energy Regulatory Commission	2/7/12
Muck, Jim	Oregon Department of Fish and Wildlife	9/7/12
Newell, Avis	Oregon Department of Environmental Quality	8/13/12
Nudelman, Debra	RESOLVE	11/7/12
O'Keefe, Tom	American Whitewater	9/13/11
Plaeger, Russell	Sandy River Basin Watershed Council	8/20/12
Prather, Dick	US Bureau of Land Management	2/17/12
Ritchie, Norm	Association of Northwest Steelheaders	1/25/12
Sten, Erik	City of Portland	4/3/13
Swift, Brett	American Rivers	8/12/11
Tehan, Michael	National Marine Fisheries Service	5/18/13
Turaski, Mike	US Army Corps of Engineers	8/21/12
Young, Doug	US Fish and Wildlife Service	11/18/11
Zauner, John	Oregon Department of Fish and Wildlife	3/29/12

Chapter 4: The Elwha Dams

Introduction

The Elwha dam removal is the largest, most expensive, and most famous dam removal in American history. Its environmental benefits are anticipated to be greater than those of any other removal project. In many ways the Elwha is a geographic anomaly: a nearly pristine river, with the majority of its watershed in Olympic National Park. Historically the Elwha contained ten different runs of anadromous Pacific salmonids (*Oncorhynchus* spp.), including a famous run of Chinook salmon (*O. tshawytscha*). The Lower Elwha Klallam Tribe's reservation sits at the mouth of the river, and the ageing dams threatened not only the tribe's traditional livelihood but the safety of the reservation as well. No other river has a comparable set of circumstances.

But the case of the Elwha, both despite and because of its unique features, exhibits many political and ecological lessons that apply to dams and rivers across the United States. The political process that led to the removal took decades. Between the first stages of real conflict in 1986 and the beginning of demolition in 2011, stakeholders dragged the dams and the river through a wide array of political venues, seizing every available policy lever and promoting a wide array of frames for the water, the problem, the culprits, and the solution. While Elwha is geographically unique, politically the case shares many factors with smaller dams in more fragmented and

ambiguous geographies.

History

The Elwha is a 45-mile river flowing north from the Olympic Mountains to the Strait of Juan de Fuca. Most of the river is in Olympic National Park, which dominates the center of Washington's Olympic Peninsula (Figure 4-1). The Elwha watershed covers 321 square miles, the largest drainage basin of the many rivers radiating out from the peninsula's mountainous center (USDOJ NPS, 2014c). Above the dam sites, nearly the entire watershed is undeveloped; there are hiking trails and campsites and a few private inholders, but the rest of the landscape is wilderness. In the lowest reaches of the river, beyond the national park boundary, are an RV park, a gravel operation, a bridge, and a few residences along some tributaries. The Lower Elwha Klallam Tribe's (LEKT) reservation sits near the river mouth.

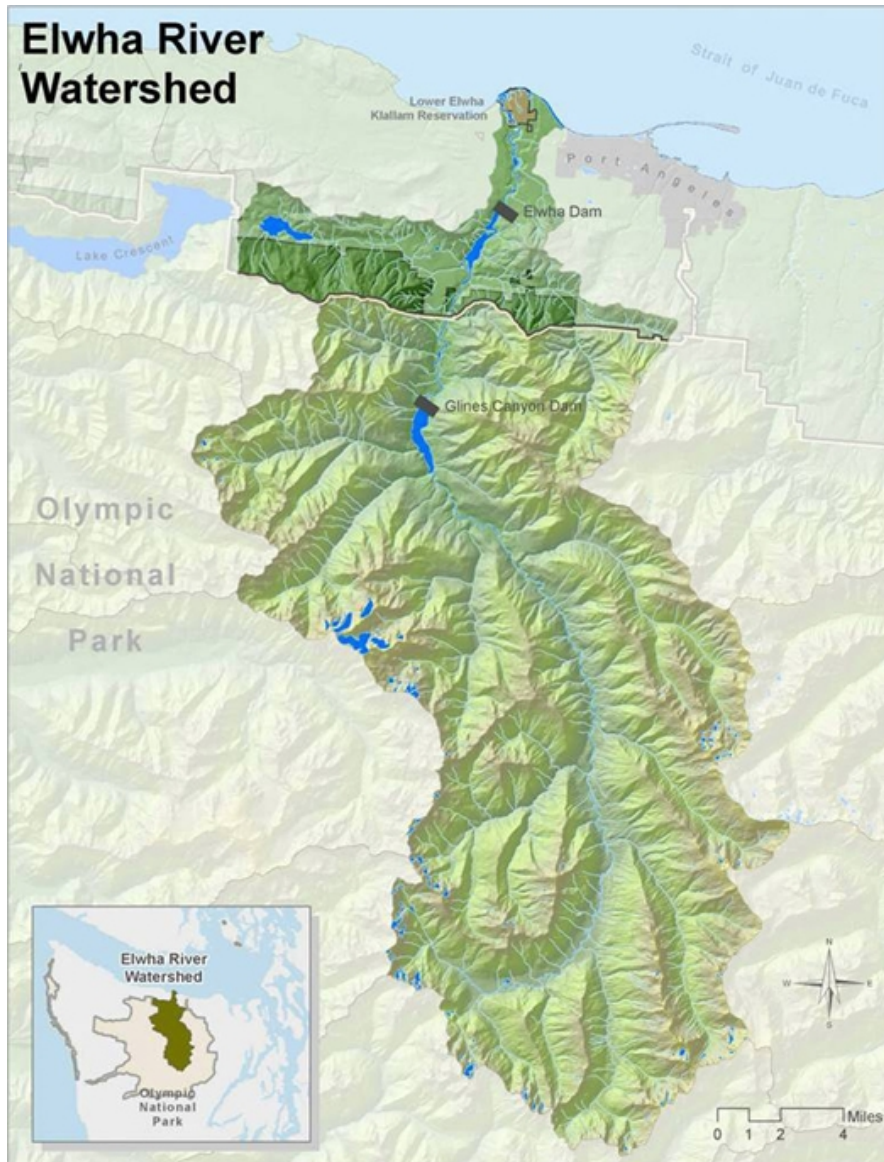


Figure 4-1. The Elwha River Watershed (USDOI NPS, 2014c)

The Klallams (sometimes written as s’Klallams)¹⁶ have lived on the Northern Olympic Peninsula for many thousands of years – the usual term is “time

¹⁶ The people who live at the river mouth are known as the Lower Elwha Klallam Tribe, but the Anglicization of their name and that of Clallam County, and the atomized nature of the various Klallam bands, has created a slightly confused situation. They are known as the Elwhas, and I call them that here.

immemorial.” The various bands of Klallams lived across much of the north Olympic Peninsula (Figure 4-2). After the arrival of European and American colonists devastated their traditional way of life, the Klallams were forced to sign away their ancestral lands in the 1855 Treaty of Point No Point. In return they received reservation lands and cash, but the treaty also held that “the right of taking fish at usual and accustomed grounds and stations is further secured to said Indians” (Stevens & Native Signatories, 1855). To the Klallams, the salmon were sacred, given to them by their maker (Bea Charles of the LEKT, in Lundahl, 2002).

In the decades to follow, some Elwhas managed to retain something of a subsistence fishing lifestyle while other homesteaded (Crane, 2011; V. G. Egan, 2007). They continued to live in the area between the Elwha River and the beaches of Port Angeles. Three Klallam bands live on the Olympic Peninsula – the Port Gamble S’Klallam Tribe, the Jamestown S’Klallam Tribe, who live to the east and south, and the Lower Elwha Klallam Tribe.

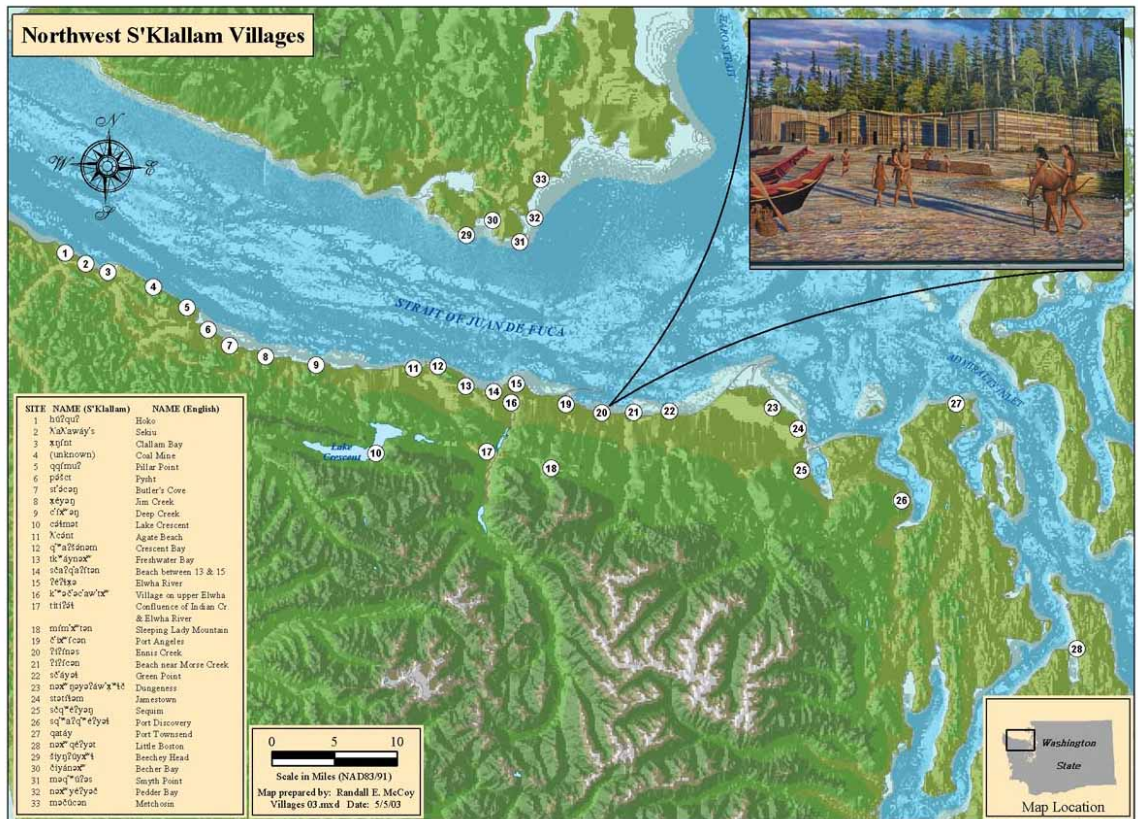


Figure 4-2. Northwest S’Klallam Villages (Lower Elwha Klallam Tribe, 2014b)

Many western rivers sustained tremendous salmon runs in historic times. While it is difficult to gauge just how many fish such rivers produced (Gresh, Lichatowich, & Schoonmaker, 2000), it is clear that even by historic standards, the Elwha was an extremely rich salmon stream. Ten runs of anadromous salmonids lived in the Elwha, including all five Pacific salmon species. The river was fishable throughout the year (USDOI, USDOC, & LEKT, 1994). The Elwha hosted an enormous population of pink salmon (*O. gorbuscha*), with a typical returning cohort conservatively estimated at 100,000 adults (Ward et al., 2008). But these were not the river’s most notable fish.

The Elwha is a rugged river, canyon upon canyon up into the glaciated Olympic Mountains, and over the millennia the evolutionary demands of swimming up it built a run of Chinook (also known as King) Salmon into giants that weighed more than 100 pounds (USDOI et al., 1994).¹⁷ In the 21st century, LEKT elder Adeline Smith remembered seeing, as a young girl, fish nearly as long as herself (USDOI NPS, 2011). The relatively nutrient-poor Elwha watershed (Goin, 2012; Dickerson, 2010) was replenished annually by millions of pounds of spawned-out salmon, sustaining animals and even plants throughout and beyond the riparian zone (Ging, 2012; Hawkins-Hoffman, 2012; Gende et al. 2002; Naiman et al. 2002; Helfield and Naiman 2001).

Around the turn of the 20th century, Canadian businessman Thomas Aldwell staked a claim on a parcel in the lower Elwha Valley, and set about acquiring land with the intention of building a hydroelectric dam there (Aldwell, 1950; Crane, 2011). In 1910, he began construction of the 105-foot Elwha Dam, five miles upstream of the Strait of Juan de Fuca. The dam was completed in 1912, but shoddy work led to the bottom of the dam collapsing and the new reservoir (known as Lake Aldwell) exploding down the valley. Among the Elwhas, this day became known as “The day the fish were in the trees,” as any salmon unfortunate enough to be in the lower river at the time were blown out of the water by the flood (V. G. Egan, 2007). Angry but undaunted, Aldwell rebuilt the dam, packing the hole with debris from the

¹⁷ Adult Chinook typically weigh 40 pounds (USDOC NMFS, 2014).

surrounding canyon (Aldwell, 1950). The rebuilt dam would stand until 2011.

The Elwha Dam was politically problematic even while it was being built. In Washington, dams were required to include passage options to allow salmon and trout access to upstream spawning grounds, but Aldwell made little effort to build fish passage. After a lengthy exchange with Washington fish commissioner Leslie Darwin, who had previously shown his willingness to dynamite illegal dams, Aldwell found a way to circumvent the law (Crane, 2011). He declared that his dam was in fact a collection tool for a future hatchery, and as such did not need a fish ladder (Crane, 2011). The hatchery was built in 1915, but it was not effective, failing after only seven years (Crane, 2011). No one moved to rectify the situation, and the status quo, with no upstream passage or functioning hatchery, remained. In 1916, Aldwell sold the Elwha dam and in 1927 the Northwest Power and Light Company built the 210-foot Glines Canyon Dam upstream at river mile 13.5. With no salmon in the upper river, there was no need to build fish ladders there.

At first, the dams' 19 megawatts provided power to all of Port Angeles (Crane, 2011). Over time, though, the town's demand for power far outstripped the dams' production. Ultimately, the dams' function was to produce 38% of the power for the Crown Zellerbach (CZ) paper mill – Crown Zellerbach had bought the dams in 1919 and 1937 (USDOI et al., 1994). Under the Federal Power Act of 1920, Glines Canyon was assigned a 50-year operating license by the Federal Energy Regulatory

Commission (FERC). The Elwha Dam, having been built before the Federal Power Act, was not licensed. The CZ mill employed some 320 people, making it the second biggest private employer in Clallam County (Citizen's Advisory Committee, 1996; USDOJ NPS, 1995a). The forest industry was the base of the North Olympic Peninsula's¹⁸ economy for most of the 20th century.

In the meantime, the Elwha's formerly abundant salmon runs were dwindling. Swimming up the first five miles of the river, returning fish would jump into the concrete and "throw themselves at it time and time and time again" in a futile effort to surmount the dam (Goin, 2012). The truncated river did retain strong populations for a few decades. Longtime Elwha fisherman Dick Goin, whose family homesteaded the Elwha valley in the 1930s, speaks of a river full of salmon and regularly saw Chinook weighing 70 and 75 pounds. His friend Ernie Brannon gaffed a 102-pound Elwha Chinook. Brannon managed the state hatchery on the nearby Dungeness River, and for years he kept the giant fish there to show to visitors (Going, 2012; Jackson, 2011).

The dams not only truncated fish habitat, but also stopped flows of sediment and debris. Salmonids benefit from physical diversity in their habitat (Fausch & Northcote, 1992) and must have appropriately-sized gravel in which to spawn (McHenry & Pess, 2008). In free-flowing rivers, habitat heterogeneity is created by

¹⁸ The North Olympic Peninsula, which includes Washington's Clallam and Jefferson Counties, is the commonly-used term for the region in which Port Angeles and the Elwha River lie.

fallen trees and boulders, which change the speed of the water and the underwater form of the river, providing fish with places to feed and to hide from predators (Quinn, 2005). But after 1913, all the Elwha's debris stayed behind the dams. Over time, the lower river's spawning gravels were washed out to sea, with the only ongoing contribution coming from bluffs as well as some small tributaries that enter the river below the dam sites. This not only diminished habitat in the lower river, but also features miles away from the Elwha. The town of Port Angeles is sheltered from the sea by a three-mile spit of land called Ediz Hook. The hook is formed and replenished partly by Elwha silt, carried east in the current. With the dams curtailing silt transport, Ediz Hook began to wash away without its natural replenishment (USDOI NPS, 1995a). By the end of the 20th century, the US Army Corps of Engineers (the Coast Guard has a base at the end of the hook) had to spend \$100,000 per year to stabilize the Hook; the dams' effect accounted for about 28% of maintenance expenditures (USDOI NPS, 1995b).

Salmon were also affected by the operations of the dam itself. The Elwha's flows were dictated by the mill's power needs, so at times the lower river would be dry, exposing gasping fish on the banks (Crane, 2011; Erb, 1988). It was illegal for tribal members, who were not at that time citizens of the United States and so were not accounted for by fish conservation laws, to harvest these fish, so the Elwhas had to choose between watching the fish rot or surreptitiously making off with them (Crane, 2011). This seemed unfair to the tribe, but it had little recourse in those days. At other

times, unannounced floods would thunder through the dam's spillway, imperiling people (often tribal fishers) working downstream (Rachel Kowalski, LEKT, in Joint Fish and Wildlife Agencies, 1989). This remained a part of the LEKT's complaints well into the 1980s (Sampson-Sherbeck, 1985).

In the first decades of the twentieth century, many people in the North Olympic Peninsula fished for subsistence, and fishing was not so much an economic activity as a way of life. Thomas Aldwell himself acknowledged that fishing was one of the greatest attractions of the Peninsula (Aldwell, 1950). Dick Goin speaks of going down to the river with homemade tackle and catching fish every day in the 1930s (Goin, 2012). Infuriated by the destruction of the fishery, fishermen sometimes gathered dead juvenile salmon in buckets and mailed them to Washington Department of Fisheries (WDF) director Milo Bell. One fisherman's message: "I am sending a sample of some dead fish that were picked up yesterday...there were lots of dead fish, Mr. Bell. You will receive these fish from time to time" (Crane, 2011). Some young people would try to personally run returning salmon above the dams in damp gunnysacks, but this, of course, was ineffective (Goin, 2012). By the 1960s, sport and commercial fishing were entrenched as part of the region's economy and culture; one of the social events of each year was the Olympic Peninsula Salmon Derby (Goin, 2012). Dick Goin, for his part, became a passionate, credible local voice for river restoration, not joining any environmental groups but speaking with a deep personal knowledge of the Olympic Peninsula's human and natural communities

(Goin, 2012; Hawkins-Hoffman, 2012).

This agitation made little difference, and the salmon runs continued to decline. The last big run of pinks, 40,000 returning adults, came in 1963, and dropped off sharply after that (Hard et al., 1996). The Elwha's sockeye (*O. nerka*) became “essentially extinct” (USDOI NPS, 1995a). It is not known when the last giant Chinook swam up the Elwha; they have not been seen for many decades. All other runs declined as well. But in the 1960s, the political situation began to move.

Political Stirrings

The Lower Elwha Klallam Tribe gained legal recognition from the United States in 1968 and soon sought federal grants to improve housing on their reservation at the river mouth. They found that the rickety condition of the lower dam – the one that blew out in 1912 – made this impossible (R. W. Busch, 2007; FERC, 1991). The dam leaked several hundred cubic feet of water per second, creating what amounted to a large creek filtering through the structure (Brown, 1982). Past flooding had damaged the reservation and caused emergency evacuations of low-lying homes (US Army Corps of Engineers, 1986). The tribe worried about earthquake problems as well – Western Washington is seismically active (Elofson, 2011). The Elwhas began to look into what they could do to rectify this problem and to restore the fishery (Elofson, 2011). From the Elwhas' perspective, the dams had devastated not only the fishery, but their whole way of life. As the tribe later pointed out, the dams' power was

considered cheap by some in the community because the dam owners had never had to pay the costs borne by the Elwhas and by other river users (Burke, 2001b; Lundahl, 2002).

In 1965, the US Supreme Court's Taum Sauk Decision (Federal Power Commission v. Union Electric Company 381 US 90) established that uses of the streams of the United States for energy transmission required a license. This, Crown Zellerbach deduced, included the unlicensed Elwha Dam. This motivated the company to apply for a license in 1968 (Crown Zellerbach, 1986). The application required some editing, and FERC only issued a notice of the application in 1976 (FERC, 1991). Later on, CZ decided that FERC might not have jurisdiction after all, believing that the Elwha was not navigable under the Federal Power Act, and filed for a declaratory order by FERC that it did not have jurisdiction. This would have made it so that the lower dam did not need a license. In 1979, it was established that FERC did have jurisdiction over the lower dam. The upper dam's jurisdictional situation was complicated as well. It did have a 50-year license, but the 1938 creation of Olympic National Park had placed the dam and its reservoir inside park boundaries; FERC cannot license projects in national parks. In 1973, CZ applied for a new license for Glines Canyon, and FERC issued a notice of application in 1978.

It quickly became apparent that the fish passage and maintenance upgrades required to license these dams would be challenging. As part of its application, CZ consulted

with the United States Fish and Wildlife Service (USFWS) and with the National Marine Fisheries Service (NMFS), as well as the WDF about the state of the Elwha's fisheries and how to improve them. In 1975 WDF reached an agreement with CZ wherein the company would mitigate its dams' impacts by helping build a Chinook hatchery. CZ agreed to pay 23.6% of the hatchery's construction costs (not to exceed \$145,140) and annual operating costs (not to exceed 33,500) (Crown Zellerbach & Washington Department of Fisheries, 1975). The agreement also established that CZ would operate the Elwha Dam project in a run-of-river fashion: it would no longer alter the river's flow to maximize power generation, but rather use the water as it flowed down from the mountains. The agreement excluded WDF from any future involvement in Elwha fish restoration issues. The hatchery did not include any other species, but decision-makers at WDF found the deal to be acceptable nonetheless. CZ would later point to this agreement as evidence of its responsiveness to fishery and resource issues and agency concerns (Crown Zellerbach, 1986).

In 1974 came a decision that would permanently change Washington's rivers, none more than the Elwha. In *United States v. Washington*, Federal District Judge George Boldt ruled that under treaties signed in the 19th century by Governor Isaac Stevens and Washington's various tribes, native fishers were entitled to 50% of any Washington fishery. The Boldt Decision, as it has since been known, was upheld by the Ninth Circuit, and affirmed by the Supreme Court in 1979. Boldt was augmented in 1980's *US v. Washington*, Phase II, called the Orrick Decision. In the Orrick

Decision the state of Washington, represented by state attorney general Slade Gorton, optimistically claimed that Boldt only meant that native fishers had rights to try to fish, and that fish produced by state hatcheries were not subject to the ruling, but judge William Orrick (Boldt having retired) ruled that *US v. Washington* did indeed cover hatchery fish, and that it established the need for conservation of habitat, fish habitat being necessary to support fishing (Belsky, 1996). These rulings intensified competition for scarce fishery resources, and increased pre-existing tensions between native and non-native fishers (Tizon, 1999). These tensions existed on rivers throughout Washington, and the Elwha was no exception (Sampson-Sherbeck, 1985). Gorton's role in the Boldt Decision helped build for him a long-standing reputation as an enemy of the tribes (Jensen, 2013; Bogaard, 2012; Broman, 2012; Hughes, 2011).

The LEKT was not party to *US v. Washington*, but as signatories to the Treaty of Point No Point, Boldt entitled them to 50% of Elwha fish, and Orrick entitled them to a healthy ecosystem to produce those fish. But in the 1970s and 1980s, as they later pointed out, these rights were guaranteed, but not protected (R. Busch & Ralph, 1986): if there are no fish in a river, you cannot have 50% of nothing (Tom Jensen in Egan, 2007). A restored Elwha River containing hundreds of thousands of salmon had the potential to be economically and culturally transformative for the tribe (Meyer Resources, 1991). In the short term, however, there was little change on the ecologically truncated Elwha. In 1974, the four native signatories of the Treaty of Point No Point (the three Klallam tribes and the Skokomish) formed the Point No

Point Treaty Council (PNPTC) to manage the tribes' fisheries. In 1978 the tribe built a hatchery to produce the fish to which they are entitled under the Treaty, Boldt, and Orrick (Lower Elwha Klallam Tribe, 2014c). The hatchery produced (and still produces, in 2014) steelhead trout and Coho salmon (*O. kisutch*).

In 1976, the tribe intervened in the Elwha Dam licensing application (V. G. Egan, 2007). The Secretary of the Interior, as the tribe's trustee, intervened as well. At that time, the Elwhas lacked the resources to intervene in the Glines Canyon licensing process as well (Plumb, 1986). The uncertain nature of FERC's jurisdiction over the upper dam was temporarily resolved as FERC issued the company a series of annual operating licenses. In 1979, FERC ordered that the two dams be considered as one project, given the interconnection in their operations (FERC, 1991). CZ agreed that this would be appropriate (Crown Zellerbach, 1986). There was some uneasiness about the dams among the agencies – in 1980 Assistant Interior Secretary Larry Meierotto wrote to FERC to say that from Interior's perspective (incorporating the National Park Service, the Bureau of Indian Affairs, and USFWS), the Elwha projects caused massive problems for the resource base in the area, which had never been responsibly mitigated (Meierotto, 1980). But this did not result in any political movement – agencies are not in the business of making political change, and there was not much that they could realistically do. FERC continued to issue annual operating licenses for Glines Canyon Dam, and there was political stasis on the Elwha until the mid-1980s.

Battle is Joined

The 1980s were an era of environmentalist ferment in the Northwest, with the Washington Wilderness Act and the Public Utility Regulatory Policies Act (PURPA) offering many opportunities for activists to engage in land protection and FERC licensing decisions (Rutz, 2011; Ortman, 2012). PURPA created a flood of micro-hydro projects nationwide, and Washington, a state blessed with steep mountains and ample rain, was very much a part of this (Rutz, 2011). Activists like David Ortman of Friends of the Earth and Polly Dyer of Olympic Park Associates, working on other land issues and intervening in other licensing decisions, thought of the two Elwha dams and began to wonder what they might do about them (Ortman, 2012; Dyer, 2012).

In 1982, journalist Bruce Brown published *Mountain in the Clouds*, a dynamic, vivid account of the decline of the Olympic Peninsula's salmon, written for a broad popular audience. This was the *Silent Spring* of the Elwha River. Brown's book resonated with many Washington conservationists, who credit it with educating them about the plight of the Elwha and its salmon and inspiring them to work on the issue (Jensen, 2013; Broman, 2012; McNulty, 2012; Rossotto, 2012; Cantrell, 2011). Brown himself did not take much political action during the Elwha debate, though he did speak at some environmental meetings (Friends of the Elwha, 1991; Nafziger, 1988).

The person near-universally acknowledged as starting the environmental movement's campaign to remove the Elwha Dams was Rick Rutz (Ortman 2012, Cantrell 2011, O'Keefe 2011, Camara, 1994). Rutz was employed by Seattle City Light, the city's public utility – he was not a professional activist – but on his own time, he worked with Friends of the Earth, the Mountaineers, the Seattle Audubon Society, and an assortment of other environmental groups (Rutz, 2011). Rutz had been involved with a number of licensing decisions in the aftermath of PURPA and became familiar with the possibilities and limitations of the process. Looking at a Washington map one day, he remembered that the Elwha Dam was unlicensed and that Glines Canyon Dam's license had not been renewed, which meant that the final licensing decisions were still pending. He felt that the environmental movement should take a hand in the matter and see about removing the dams (Rutz, 2011). Rutz was not a lawyer, but he began to prepare a motion to intervene in the licensing process.

The intervention would be very late, of course, but the unresolved FERC process and the status quo of annual operating licenses offered Rutz an opening. In the mid-1980s he pitched his idea to various environmental groups in the Seattle area. Many of them received him with skepticism. He noted (in 2011) that both the environmental community and the National Park Service thought he was crazy – in the 1980s, the suggestion that one might take out large hydroelectric dams seemed irresponsible at best, and environmental groups worried about smirching their names and affecting their ability to be taken seriously in other settings (Rutz, 2011; Cantrell, 2011;

O’Keefe, 2011). After some effort, though, Rutz persuaded the Seattle Audubon Society, Friends of the Earth, the Cascade Chapter of the Sierra Club, and Olympic Park Associates (OPA) to join the intervention. Each organization had its own persuasive argument for standing in the Elwha relicensing process. Seattle Audubon had been running trips to the Peninsula since the 1920s, OPA’s very existence was focused upon Park land issues, Friends of the Earth had been intensely involved with hydropower issues, and the Sierra Club’s credentials as perhaps the foremost environmental group in the United States spoke for themselves (Rutz, 2011). Each group contributed to building an active environmentalist presence in the Elwha decision. While the effort was very open and collaborative, Friends of the Earth had staff time available where the other organizations did not, so its operatives, Michael Rossotto, Jim Baker, and then Shawn Cantrell, led the environmental effort (Cantrell, 2014; Ortman, 2012; Cantrell, 2011). OPA provided the regional connections to get Len Barson, a former staffer for Congressman Al Swift (D-WA), whose district included Clallam County, as the environmentalists’ counsel (Barson, 2012). The group met in the offices of Len Barson’s law firm, Keller Rohrback (Barson, 2012). Friends of the Earth had a Victor computer (a rare resource in 1986), which was one of the reasons it attracted Rick Rutz (Rutz, 2011; Ortman, 2012). They had legal help from the Sierra Club’s Legal Defense Fund (Rutz, 2011).

These groups, hereafter referred to as the Conservation Interveners (CIs), filed to intervene in May 1986. The passage of the Electric Consumers Protection Act that

autumn ensured that the CIs' values would have power in the relicensing process and put the dam owner on shakier regulatory footing (Campbell, 2011). These four original CIs became the core of the environmental coalition that drove the early stages of the dam removal effort. They would be joined in 1990 by Trout Unlimited, and, in time, by a cascade of environmental groups. Trout Unlimited's local executive director, Bill Robinson would forge an effective connection between fishing-based groups, more politically conservative and economically-driven, and traditional environmental groups (Broman, 2012; Rossotto, 2012).

The PNPTC was also preparing an intervention in the relicensing process in 1985, and there was some cooperation between the environmentalists and the tribes. Russell Busch, a lawyer from Evergreen Legal Services and the man who would represent the Elwhas throughout the issue, had been in contact with Rick Rutz, and by some accounts Busch and tribal biologist Steve Ralph helped Rutz prepare the CIs' intervention (McNulty, 2012; Ralph, 2012). The LEKT intervened on its own accord in January 1986 and the PNPTC intervened in February.¹⁹ The tribes welcomed Rutz and his friends to the fight (Rutz, 2011; McNulty, 2012). CZ objected to these late interventions (Derick, 1986), but as the CIs pointed out, there had been no forward movement in the years since the license applications, so essentially, they hadn't missed anything (Rutz, 2011). The interventions were accepted by FERC in November 1986. The National Marine Fisheries Service intervened in 1986 as well.

¹⁹ The Elwhas left the PNPTC later, and for most of the debate the tribe was the only Native actor.

Thus began the real debate over the Elwha, which would not end for 25 years.

The rising controversy over the Elwha hydroelectric licenses put land and resource agencies in a challenging position. The status quo on the Elwha had not changed much for many years, but new stakeholders and new ideas brought them to reassess their approaches (Cantrell, 2011). Part of the reassessment came as a result of changes in personnel – as the park’s leadership changed, the Park Service’s vision of restoration expanded. This sort of shift has been noted repeatedly in an array of resource agencies, as national changes in environmental attitudes, from conservation to preservation to restoration, have been reflected in the Forest Service, Park Service, and Army Corps of Engineers (Clarke & McCool, 1996; Gross, 2008). There have been splits between younger line staff and their traditionally-trained superiors, but by the 1980s agency personnel who began their careers in the age of environmentalism and ecology were taking leadership roles, asserting themselves and taking their agencies in new directions, on the Elwha and elsewhere (Cantrell, 2011; Ging, 2012; Hawkins-Hoffman, 2012). Resource agencies’ missions tend to be broad (even contradictory), especially as new policies – the Multiple Use Sustained Yield Act or the Electric Consumers Protection Act, for instance – are formed. Depending on the tone and direction of the agency and its department at any given time, this could be paralyzing or liberating. In the case of the Elwha, Manuel Lujan’s Interior was not unreceptive to restoration, but there was little sense that an agency staffer would feel free to speak out on an environmental issues (Ging, 2012). While the agencies are

restricted to pursuing their missions, in this case the result was adequate leeway to create environmental change.

The various agencies involved with the Elwha formed a working group for the restoration and relicensing effort as early as 1985 (V. G. Egan, 2007; Joint Fisheries Agencies, 1985). Represented were the NPS, the PNPTC, the LEKT, the USFWS, NOAA National Marine Fisheries Service (NMFS), and the Washington Department of Game (later consolidated into the Washington Department of Fish and Wildlife). These meetings covered biological and management issues. The agency group, known eventually as the Joint Fish and Wildlife Agencies (JFWA) would work together throughout the process. At this stage the lead agency was the National Marine Fisheries Service (NMFS), under the leadership of lawyer Lori Bodi (Bodi, 2012; Ralph, 2012; Winter, 2011). She would later be replaced by Brian Winter, a NMFS biologist – Winter would oversee the restoration effort for the rest of the project. The JFWA made sure that their statements on the dams matched one another's, to present a united front to FERC (Winter, 2011). They looked into the impacts of relicensing and removal, demanding information from FERC on all options to assess the case (Winter, 2011). They met regularly with the CIs (Baker, 2012; Barson, 2012; Hawkins-Hoffman, 2012), but the Park Service's role was to distribute and exchange information with all interested parties. The CIs were able to take more active angles than the agencies, and each part of the coalition, with its own function, "pushed the snowball" of the Elwha dams (Hawkins-Hoffman, 2012).

Issues

The complicated – indeed, unprecedented – nature of the Elwha’s issues meant that the late 1980s and early 1990s were largely consumed with wrangles over information and expertise, undertaken within the FERC and NEPA process. FERC issued a scoping document on Elwha licensing in 1989 and a draft environmental impact statement (EIS) in 1991. Interim relief, intended to maintain the viability of the Elwha’s fish and wildlife in the meantime, was requested by the agencies and discussed between 1987 and 1989. In the course of these documents’ formation, the stakeholders debated an array of issues that would permanently shape the Elwha decision. The rest of the process, for the next two decades, would be devoted to resolving or working around these issues. A brief discussion of the issues follows.

Jurisdiction

The primary issue that had to be addressed in the licensing process was whether the licensing would proceed at all – whether FERC had jurisdiction over Glines Canyon Dam. If FERC did not renew the Glines Canyon license, then the dam would likely be removed. The law on licensing dams in national parks was quite clear – it could not happen – but FERC, CZ, and power interests (including the Department of Energy, and some politically active local citizens) believed that renewing existing licenses was permissible (Adamire, 1990a; American Public Power Institute, Edison Electric Institute, & National Rural Electric Cooperative Association, 1992; Crown

Zellerbach, 1986; Deacon, 1991; Derick, 1992). The environmental interests looked to challenge FERC's jurisdiction.

In 1986, Senator Dan Evans (R-WA), a former governor and longtime environmental advocate, suggested working around the jurisdiction issue by having the Federal Government buy the dams, but at that time there was little support for the idea ("City Council surprised by plan for Elwha River dam takeover," 1986). Evans, a keen outdoorsman, had long harbored a desire to see the dams removed from the river (Mentor, 2013). A few weeks after Evans' proposal was publicized in the *Peninsula Daily News*, locals Buck Adamire and PV Holden wrote to the editor decrying park expansion and in Holden's case equating the continued operation of the dams with national survival (Adamire, 1986; Holden, 1986). Jurisdictional questions aside, there is a deep skepticism of the federal government and the National Park Service in the North Olympic Peninsula. The anti-government views espoused by Adamire, Holden, and others like them would play an important role in the issue going forward. Federal acquisition of private property was not a political winner on the Olympic Peninsula.

In 1988, the CIs filed a petition with FERC for a declaratory order that it did not have authority to renew the Glines Canyon license. In June 1989, Representative John Dingell (D-MI), who chaired the House Energy and Commerce Committee, asked the Government Accountability Office (GAO) to look into the matter of whether the Glines Canyon Dam was in fact under FERC's jurisdiction. Later that year, FERC

responded to the stakeholders' petitions with an inconclusive statement that it might have jurisdiction given the ambiguity of the law and mixed agency jurisdiction over the lands containing the projects (Socolar, 1990). In early 1990, the GAO replied to Dingell, saying that in its judgment, the dam was not in FERC's jurisdiction (Socolar, 1990). The CIs immediately produced a press release trumpeting the finding (Friends of the Earth-Northwest, 1990). This finding wasn't binding, as the companies' representatives were quick to point out (Derick, 1990c). However, as the thoroughly-researched and well-supported position of a neutral party, it carried significant weight.

Restoration

“No one involved with the dams – Swift, business concerns, the National Park Service, the Federal Energy Regulatory Commission and environmentalists – disagrees with the goal of re-establishing fish runs.”
(Christman, 1989b)

No important stakeholder, at any time, opposed the restoration of the Elwha fisheries. How such a restoration should be accomplished, though, and what sort of restoration would be feasible, was (and continues to be, in 2014) a source of passionate debate.

After the tribe's and the conservation groups' intervention, the company responded by suggesting that the fishery be managed and restored with the dams in place (“City Council surprised by plan for Elwha River dam takeover,” 1986). This scheme

evolved over the years as the relicensing question went through rounds of debate, study, and documentation. It involved a combination of techniques: restoration of upstream passage by some combination of fish ladders and trapping fish below the upper dam to haul them above it, Eicher screens to keep downstream migrants away from hydroelectric turbines, and some reoperation of the dam, with water spilled in such a way as to benefit fish (Derick, 1990a; Hosey and Associates, 1990). The environmentalists and the tribes found this to be unacceptable – one tribal biologist would later call these expedients “Band-Aids” (Ralph, 2012; Elwha Conservation Interveners, 1989). The tribe claimed that full restoration would only be reached with a year-round fishery, with at least one species catchable in the Elwha every day; tribal fisheries manager Rachel Kowalski pointed out that this was why the tribe had settled at the river mouth in the first place (L. Harris, 1990a). The tribe would not even accept 95% passage (the standard set by the agencies (Bodi, Driver, Busch, & Frymire, 1989) for downstream migrants; they pointed out the ecological value of early and late migrants’ alleles in particular, and felt that these would be limited by the company’s plan (R. Busch, 1990). It is also notable that all of these changes would have been expensive for the company.

Passage at the dam was not the only problem. The agencies, and the tribe, pointed out many ecological and management problems stemming from the dam. Brian Winter, at that time a PhD candidate in fisheries at the University of Washington, reported the presence of many false redds, nest without viable salmon eggs, which he blamed on

unsuitable substrate, and Rachel Kowalski, LEKT tribal fisheries manager, pointed out the danger and property damage caused to tribal fishers by seasonal upramping of water releases from the dam. They recommended a range of initiatives – outplanting, habitat rehabilitation, land set-asides, and more – but emphasized that these expedients were temporary and inadequate (Joint Fish and Wildlife Agencies, 1989). Winter would rise to be the Elwha Restoration Project Manager, and would oversee the removal effort for over a decade.

The company running the mill changed several times. For most the 20th century it was Crown Zellerbach, which became James River Corporation. In 1988, the mill was sold to Daishowa, a Japanese company. Daishowa America, the company’s arm in the United States, would not take possession of the hydro projects, though, until such time as the licensing situation was cleared up – in the meantime, James River Corporation (which went through several different names in the interim) continued to own the dams themselves (“James River keeps ownership of dams,” 1987). Daishowa worked hard to establish itself as a good citizen of Port Angeles, reaching out to the community through such gestures as building athletic fields (“Daishowa gives \$36,000 to build PA play fields,” 1988). Daishowa’s role, though increased the pressure to resolve the issue – a Japanese company was considered to be less likely to stay patient with the vagaries of American politics over the long term (Bracy, 2013).²⁰ Daishowa’s representative in negotiation was Terry Bracy, a widely respected

²⁰ The mill is now owned and operated by Nippon Paper Industries, which bought DA in 2003, after the politics of the dam removal had been essentially resolved

lobbyist and a man with a great deal of experience in and commitment to environmental issues (Weland, 2013; Bracy, 2013; Finnerty, 2012). Daishowa stayed involved but quite neutral throughout the process (Rutz, 2011).

Management plans proffered by the dam owners only discussed restoration of Chinook and Coho (*O. kisutch*) salmon, and steelhead trout (*O. mykiss*): economically valuable species with strong chances for restoration and populations supplemented by hatchery production. The company did not consider pink and chum salmon (*O. keta*), which were still technically present in the Elwha, to be realistic restoration candidates (Riski, 1990). NOAA had previously suggested that the pink run was extinct – a massive population crash after 1981 dropped the formerly enormous run to a token few individuals, and from 1989-95, four pinks were seen in the Elwha (Hard et al., 1996). To the tribe, the agencies, and the environmental groups, though, Elwha restoration meant full restoration (Ralph, 2012; Bodi, Driver, Busch, & Frymire, 1990). The company was advised that its plan needed to include restoration of all Elwha runs regardless of its or its consultants' opinion that the fish wouldn't come back (Michaels, 1988). FERC's 1991 DEIS did not identify a preferred alternative, leaving the company to claim that the document supported dam retention, and interveners to claim the opposite (L. Harris, 1991b; Moeller, Driver, Busch, & Frymire, 1991). The CI's argued that the DEIS findings proved that dam removal would be a "win-win" option where the community, the company, and the river would all benefit (Elwha Conservation Interveners, 1991). JFWA's comments, a

year later, supported dam removal, and noted that the only interests served by retention were those of the company. Moreover, they said, since James River would be transferring the dams to Daishowa in the event of a renewed license, it would not be responsible for the future failure of any mitigation plan (Moeller, Driver, Busch, & Frymire, 1992). This raised echoes of Thomas Aldwell's short-lived hatchery from seventy years before. JR, for its part, criticized the engineering and ecological demands of dam removal as unfeasible, and maintained their belief that pinks, chums, and sockeyes were unlikely to be restored regardless.

Some local people worried that the upstream population of resident rainbow trout would be harmed by the dam removal and the possible return of anadromous fish. To the JFWA, though, the priority was the reintroduction of the native anadromous runs; the fate of these resident trout was not an issue (Bodi, Busch, Frymire, & Driver, 1987). The environmentalists also criticized JR for failing to account for the future capital investments that would likely be required, especially on the decrepit lower dam, if the company kept the dams (Shelton, 1990). Some years later, company representative Orville Campbell pointed out that the system of annual licenses and ongoing uncertainty made it hard for the companies to justify such capital investments (Dawson, 1997).

Periodically, the salmon of the Elwha would suffer from parasites or fish diseases, devastating fish in that particular year and demanding alterations in river management

(for example, “Officials seek cause of fish kill on Elwha,” 2001, “Parasite causing large salmon kill,” 1987). In 1987, for example, the company responded to an outbreak of gill disease by adjusting the operation of the lower dam to release cooler water that was less hospitable to disease (Ross, 1987). While this spoke to the company’s willingness to work with resource managers and help the fish, it also spoke to the alterations the dams had wrought upon the river – water at the surface of a reservoir, sun-warmed and still, is hotter than the moving water of a natural river, and parasites and diseases thrive in hot, still water. If the dam was re-operated to release cooler water through the dam’s turbines, then any juveniles planted above the dams were killed in the mechanism – there was no safe operating option that would allow for fish above and below the dams (Wunderlich, 2012). These situations helped convince some scientists that restoration and the cooler river that salmon need would not be possible with the dams still standing (Wunderlich, 2012; “Officials seek cause of fish kill on Elwha,” 2001). The company at one point suggested that the dams would give agencies more options to deal with diseases, but the agencies dismissed this claim as being without scientific merit (Joint Fisheries Agencies, 1988). Later documentation would reveal that water releases from the surface of the reservoirs had raised the downstream by roughly six degrees F (FEIS1).

A common refrain in some corners of the Olympic Peninsula was that the Indians, not the dams, were to blame for the decline in salmon. As the decline of the salmon runs had taken decades, some people believed that the Boldt decision and an associated

rise in native fishing had caused the decline (for example, Henry, 2011; Tuttle, 2000). The tribes often caught fish by using gillnets, which stretch across the mouths of rivers, to snare returning salmon. While these nets are used and managed in such a way as to perpetuate the runs and let some fish spawn upstream (Ross, 1989b), to casual observers it can appear that the nets catch all of a returning cohort of adults. Complaints about nets continued throughout the debate (Chastain, 2011; Holman, 1994; Parsons, 1998; Spees, 2006; Stoddard, 2010). Foreign fishing offshore was also a popular scapegoat (Chastain, 1995b; L. Harris, 1990d; Lauderback, 1996; Ross, 1989a). Gillnets and ocean fishing had caused controversy, well before the dam debate, but the relicensing decision gave these controversies fresh life.

Economics

Employment is important for all communities, perhaps more important in commodity-based rural economies, but it was a particularly sensitive topic in the North Olympic Peninsula in the late 1980s and early 1990s. During this time an environmental issue rose on the Olympic Peninsula that would dwarf the Elwha Dams: the Owl Wars. The Northern Spotted Owl (*Strix occidentalis caurina*) lived in mature trees in old-growth forest. The owl was listed as endangered in 1990, and swathes of its habitat in Olympic National Forest were put off-limits to loggers. The Owl Wars roiled the entire Pacific Northwest from northern California to the Olympic Peninsula. It was a devastating time for the region's timber economy, putting hundreds of people out of work, creating a regional mindset of Owls vs. People and

casting environmentalists as inhumane zealots driven to return the land to wilderness (Garrity, 2011; Mossman, 1991; Seideman, 1993). In the state of Washington, the epicenter of the Owl Wars was the small town of Forks, 50 miles west of the Elwha River (Dietrich, 1992). The conflict poisoned and extended the dam debate, as salmon took the political place of owls and environmental advocates found themselves facing hardened opposition that reactively hated them regardless of the details of their argument. Many Elwha stakeholders noted the owl while discussing Elwha Dam politics in 2011 and 2012 (Mentor, 2013; Swift, 2012; McNulty, 2012; Baker, 2012; Cantrell, 2011). The fear was that the controversy over the dams would result in the mill closing.

Just as no relevant stakeholder opposed fishery restoration, no relevant stakeholder wanted the mill to close. The company worried that if 38% of their electricity became more expensive, it would raise their operating costs enough to perhaps drive them out of business – they projected that replacing Elwha power with power from Port Angeles City Light would increase their total operating costs by 5.4% (Derick, 1990b). In 1987, Crown Zellerbach got the Clallam County Economic Development Council to review the effects of closing the mill. The council projected over 1000 jobs lost, comprising 7% of the county's work force and 11% of county wages (Derick, 1987). This was a horrifying prospect for the North Olympic Peninsula.

The key to the continuous operation of the mill would be to replace the dams' power in an affordable way. The long-term answer to the economic problems would be to get government to buy them for a fair price (R. W. Busch, 2007; L. Harris, 1991d). This idea stemmed from an unnamed Fish and Wildlife Service's official's suggestion to treat the dam removal like a standard water project, with a negotiated, funded solution (R. W. Busch, 2007). The companies, the agencies, and members of Congress began to work up this plan (R. W. Busch, 2007), and Congressional staffers ran "shuttle diplomacy" efforts to get the CIs (who wanted the company to pay) to acquiesce to the plan and drop their suit (Robinson, 2012; Rutz, 2011; Cantrell, 2011). The people of the Peninsula were open to federal acquisition as well (Erb, 1991a). In later years, when dam removal was more common, there was some criticism of the government paying the company for its dam, but at the time, as Congressman Al Swift said, no-one in 1992 thought that anything else would have been appropriate – the government buying the dams was not considered a windfall for the company, but a political necessity (Associated Press , 1999). Swift himself had been adamant that the federal government would bear the financial burden, not the state, when the Elwha Act was passed (Swift, 2012). The price of the dams was set at \$29.5 million.

Framing the Dams

The stakeholder groups involved in the dam removal held fundamentally different understandings of the dams and their purpose, which made it difficult to achieve a

broad consensus. To the companies, the dams were power providers – for them the relicensing and restoration decision was a matter of business (Swift, 2012; Derick, 1990b). At the same time, the companies were aware of their and the mill’s role in the Port Angeles community. James River’s comments on NEPA documents emphasized that the facilities in question were already operating, and raised the specter of dam removal causing floods, and of a regional power shortage in the future. The company reiterated that it did not believe that NEPA demanded FERC include past impacts in its decisions (Derick, 1990a; Elwha Conservation Interveners, 1989a). The company argued that the DEIS gave too little consideration to the cultural and historic values of the Elwha and Glines Canyon projects, which were on the National Register of Historic Places; some in the Port Angeles community felt this way as well (USDOI NPS, 1995a). The companies asserted that “there is no legal basis for elevating the restoration of natural conditions in the Olympic National Park, which is based on NPS policy, above the statutorily protected historic values of these two projects, and the FERC decision making process must be readjusted to give equal and balanced consideration to historic preservation objectives” (Harza Engineering, 1991).

When the companies did this, the CIs facetiously agreed that, yes, “they are historic examples of indifference to environmental values and concerns” (Elwha Conservation Interveners, 1989a). When they looked at the dams, the environmentalists saw destruction and imprisonment. The CIs’ “battle cry,” many times repeated, was Free the Elwha, or Elwha Be Free! (Baker, 1990a; Dolan, 1987a, 1987b; Patterson, 1988;

“Sierra Club to hear of Elwha dams,” 1990). To environmentalists, the dams were like prison walls, or chains, confining the river and killing its “legendary” salmon (James Curnew, 1990b; Dolan, 1987b). The Sierra Club’s publication *Cascade Crest*, depicted the lower dam as a guillotine, with a collection of dead fish below (Club, 1989). An OPA mailing offering “a once in a lifetime opportunity to help remove two fish-killer dams” featured a cartoon of water spilling out the middle of a broken dam and three smiling fish leaping toward the hole (Olympic Park Associates, 1989). The legendary salmon, they hoped, would return. Michael Rossotto, a Friends of the Earth staffer who helped coordinate the CI’s in the mid-1980s, is credited with making sure that the environmentalists emphasized the remarkable qualities of the Elwha’s salmon in their public communications (Baker, 2012). Salmon restoration was a particularly appealing prospect for fishing advocates, who joined the environmentalist group in the form of Trout Unlimited in 1990. Anglers emphasized the unique nature of the Elwha, with its glacial sources, pristine watershed, and history of gigantic trophy Chinook – the sort of river for which American anglers travel to Canada or Alaska (Wiggins, 2012; Curnew, 1990b; L. Harris, 1990b; Wright, 1990). The prospect of thousands of fly fishers vacationing in Port Angeles rather than British Columbia added an economic aspect to the environmental benefits of dam removal.

The legally dubious history of the dams’ construction was a constant theme of environmentalists’ rhetoric (Jensen, 2013; Baker, 1991; Johnson, 1990; Perkins, 1993). The fact that Aldwell’s construction had broken the law gave

environmentalists added zeal. The companies pointed out that such long-ago events were not required for consideration under NEPA, but the illegal dam construction remained part of the dam removers' indignant rhetoric throughout the issue (Finnerty 2012; Rutz, 2011; Curnew, 1990a; L. Harris, 1991b). In many cases, environmental groups take things that were accepted in the past and argue that they are unacceptable, but here was something that was never acceptable, that had always been wrong. The agencies were aware of it as well (Finnerty, 2012), but vengeance was outside of their missions.

The tribe was even more viscerally committed. The Elwhas struggled with poverty and substance abuse, and at one point unemployment was 63.5% (G. Charles, n.d.). The tribe connected this social disarray to the dams and the destruction of the river ecosystem that had been the wellspring of their prosperity for millennia (R. W. Busch, 2007; Kowalski, 1989). Beyond the decline in the salmon and the shrinking estuary, the Elwha Dam was built over the Elwhas' traditional creation site, the spot where, they believe, the god-like Changer was (James Curnew, 1990b; Lundahl, 2002). The tribe found the companies' emphasis of the dams' historic role to be inappropriate and Eurocentric, given the Elwhas' far deeper connection to the river (Ralph, 1988). Tribal representative Russell Busch connected the breakdown of the Elwha fishing economy to "alcohol/chemical abuse, depression, eating disorders, nutritional deficiencies." He wanted FERC to "have a clear understanding of how these dams have dominated, in a thoroughly negative way, the daily life and attempts

at advancement of the Elwha Tribe,” citing flooding effects, beach erosion, and drinking water impacts as well. Busch then detailed the Elwhas’ dire poverty as follows:

There is so little value available in the Indian community that the normal social mechanisms middle-class communities take for granted do not function. There is no ‘reserve’ to meet the crises which poverty generates in a downward spiral. There is little money for social services. There is little money for planning, let alone the economic development that might follow. When a member of an extended family has an emergency, there may be no-one with the money to help. Children learn defeat and powerlessness. Success and growth require resources. Those have been taken away.

All of this, said Busch, was not accounted for in FERC’s scoping document (R. Busch, 1990). The Lower Elwha Tribal Council commissioned a study on the socio-economic aspects of the DEIS, which reiterated Busch’s points (Meyer Resources, 1991).

When the Peninsula Daily News listed the dams’ stakeholders in July 1989, it did not mention the North Olympic Peninsula community (Christman, 1989b). Pro-dam forces in the community had not mobilized yet. While no group representing the citizens of Port Angeles intervened in the relicensing decision, the desires of local citizens became extremely important.

The initial response from the community when the subject of dam removal arose was incredulity more than anything else (Swift, 2012; Chastain, 2011; Cantrell, 2011; Campbell, 2011). Even such supporters as Roy Nelson, president of the Olympic Outdoor Sportsmen’s Club, supported conducting a dam removal feasibility study, “but (didn’t) expect that to ever happen,” saying, “our club is working for a way to get the salmon over the dams to the water on the other side” (Peninsula Daily News Staff, 1988). The club had taken part in other restoration projects in the area and had even helped remove a much smaller dam from nearby Ennis Creek (“PA Council OKs taking out log dam,” 1990), but was not active in the Elwha licensing process. Bruce Brown himself raised the option of removing the lower dam only and trying to pass fish around the upper one (Nafziger, 1988). James River called dam removal “an extreme and unrealistic proposal” (Derick, 1989) by “extreme environmental groups” (Riski, 1990). At first, when the company discussed management plans, the resource agencies (NMFS, USFWS, WDFW (Washington Department of Fish and Wildlife), and LEKT) only suggested fish passage upgrades at both dams (Amundson, 1988). But later, in a letter from the JFWA to FERC, the agencies specifically emphasized that dam removal was, in fact, to be evaluated as a full restoration alternatives for the Elwha (Bodi, 1989). NOAA later laid out its arguments for FERC – the dam being in the park, inadequate passage, the dams’ paltry power load, and so on – but the first challenge, before those arguments could take effect, was to establish dam removal as a plausible option (Cantrell, 2011; Wold, 1989).

Perhaps because of its strangeness, there was relatively little public attention paid to dam removal in the Port Angeles community until the start of the 1990s. In the Peninsula, the only significant agitation surrounding the dams came from the environmental extremist group Earth First!, which played a very small role in the debate overall but was familiar in the Olympic Peninsula through their activism (some would say terrorism) on forest issues (Patterson, 1987). The Earth First! activists, “swept up in the idea of seeing the Elwha free again, since the salmon runs are legendary there” engaged in some political theater, pantomiming the demolition of the dam (Dolan, 1987a; Patterson, 1987). Earth First! later painted a crack with the message “Elwha Be Free!” on the face of the Glines Canyon Dam (Dolan, 1987b). This tactic has been seen on controversial dams throughout the West (Barlow, 2011; United Press International, 1987). To some in Port Angeles, playing at sabotage in this way was the action of “sick mind(s)” (Keim, 1987).

The idea of dam removal made some people furious. To one local letter writer, “All that Port Angeles has accomplished since their building is due to their tireless efforts” (Lebo, 1990). Threats to the dams’ status as private property angered some as well (Griffing, 1990). The dams’ hydropower was repeatedly supported for its cleanliness (Griffing, 1990; Machenheimer, 1991; Rains Sr., 1994). The lakes created by the structures also drew some support offering “opportunities to experience nature in the raw” (Buxton, 1990). Some pointed out that other rivers in the Olympic Peninsula

had no dams and yet had struggling fisheries (Smith, 1990). To people in the community, the dams provided many benefits at minimal cost. There was a widespread belief that the dams' power served as an emergency backup and stabilization supply for the city of Port Angeles, particularly the hospital (Bergman, 1990; USDOJ NPS, 1995b). This was not, in fact, the case – the dams didn't make enough power to be a backup for emergency services, which had backup generators, and the dams were not connected with the Port Angeles grid in such a way as to send their power to, for example, the hospital, in case of an emergency (Citizen's Advisory Committee, 1996; USDOJ NPS, 1995b). Some of these angry letter-writers were far on the political fringe, but they would later coalesce into an important part of the issue.

Dam removal advocates seized the political initiative first. In 1989, at meetings to discuss the relicensing and restoration process, environmental groups rallied their supporters in Port Angeles and Seattle. In both places, the mood was overwhelmingly in favor of restoration and dam removal (Campbell, 2011; Riski, 1989b). In Port Angeles, ten people spoke in favor of removing the dams while only two favored keeping them (Riski, 1989a). People assembled at the meeting applauded the tribe and the environmentalists for their support of dam removal and fish restoration (Riski, 1989b). "Free the Elwha" buttons were worn by those in attendance (Erb, 1989), as they would be for years afterwards (Camara, 1994c).

Local supporters of dam removal soon organized into an advocacy group called “Friends of the Elwha.” The similarity to Friends of the Earth was not only in name – the group was created in part by Friends of the Earth to lend the conservation interveners a local voice, to ensure some credible pro-removal local presence at public meetings (Baker, 2012; McNulty, 2012). Friends of the Elwha urged their membership to be calm and polite in their comments and remember that “Our opponents are the crazy ones, not us!” (Unsigned, n.d.) and argued that “there is a good deal of sentiment within the community that the dams should come out” (Erb, 1990b). Led by local environmentalist Jim Curnew, Friends of the Elwha acted as a counterbalance to the rising anti-removal movement.

The Issue Expands

As debates and negotiations went on in western Washington, the conflict began to concern Al Swift and Senator Brock Adams (D-WA). In early 1989, Adams visited Port Angeles and expressed his support for restoration upstream, but specifically emphasized his hopes for restoration with the dams in place (“Adams gets a look,” 1989; Patterson, 1989). At the same time, Swift proposed a study of the dams and the fish, noting the economic benefits of restored fish runs but underlining the importance of the mill – he would never support a restoration plan that could throw the mill’s 320 employees out on the street or degrade Port Angeles’ water (Swift, 2012; Amundson, 1989). Swift was well aware of the precedents that decisions on jurisdiction, restoration, and dam removal on the Elwha might set, and was eager to work out the

interagency dispute to avoid the need for legislation and especially litigation (Christman, 1989a; Erb, 1990b). In 1989 he met with environmentalists Jim Baker and Michael Rossotto of Friends of the Earth, and with Rick Rutz, to tell them that he was looking to introduce a bill forbidding dam removal on the Elwha – that he didn't feel dam removal was merited (Baker, 2012).

This frightened the environmentalists. They had felt that they would be able to win a relicensing battle with FERC, given the many issues afflicting the dams, but Al Swift and his potential bill were quite another matter. Baker thought, however, that in doing this Swift was giving the environmentalists a chance – pushing them to find some resolution (Baker, 2012). No one had any desire to put anyone else out of work. Baker considered the situation and suggested a creative solution (later dubbed “The Creative Solution” (Rutz, 2011; Baker, 2012) that could preserve the mill and remove the dams. What if, he asked, James River could replace the dams' power through conservation measures? The mill was relatively old and there was hope that it could save 22 MW of power. Baker suggested that the company allow the Bonneville Power Administration (BPA) to do an audit of its operations to reveal any available savings. BPA was mandated to seek efficiency in the region's power under the 1980 Northwest Power Planning Act. The environmentalists, he said, believed that 15-20 MW of cost-effective conservation were possible at the mill and that such an audit qualified for BPA funding (Rossotto, 2012; Baker, 1990b). The company said no. The fact that James River resisted even a free audit seemed to indicate to the

environmentalists that the company was not being entirely frank in its dealings (Rutz, 2011; Baker, 1990b), and they told Swift as much. Swift and Adams seized on the Creative Solution and began to push for it as a win-win option (Baker, 2012; Brock Adams, 1991; Christman, 1989b). The phrase “win-win” was constantly repeated by dam removal advocates in the years to come (Barson, n.d.; Jim Curnew, 1991; Dawson, 1990; Elwha Conservation Interveners, 1991). The company later had Port Angeles City Light audit their operation. This audit showed 1.1 MW in conservation, but the CIs thought that a better audit would have shown more savings (Erb, 1991b).

In 1990 the Park Service, which had previously accepted FERC’s relicensing the upper dam and installing fish passage on the structures, shifted its position (Hawkins-Hoffman, 2012; Erb, 1990a; Patterson, 1987). Maureen Finnerty, the new park superintendent, was more active on restoration issues than her predecessors had been (Baker, 2012; Finnerty, 2012; Hawkins-Hoffman, 2012; Elofson, 2011; Thaler, 1986). In 1990, Olympic National Park released a statement unambiguously supporting full restoration through dam removal as (USDOI NPS, 1990). A Park Service representative pointed out that even if the passage technology worked perfectly, it would only restore two stocks out of ten. In her public statements, Finnerty made sure to emphasize that the viability of the mill and its power supply were necessary for any plan, as far as the park was concerned (Erb, 1990a). By October 1990, the Park Service was running slide shows intended to show audiences that restoration would depend on dam removal (Hawkins-Hoffman, 1990). A similar

statement from the USFWS soon followed (Dawson, 1990). NMFS had favored dam removal before either Interior agency (Winter, 2011).

Interior has resource extraction arms as well as resource conservation arms, so agencies like the Fish and Wildlife Service had to make sure that their science was sound and focused upon restoring fish rather than on anyone's desire to remove the dams (Ging, 2012). The company and Congressman Swift expressed their disappointment, but continued to work as before (Erb, 1990b). For Swift, the Park Service shift signaled that removal was likely to happen (Swift, 2012). In 1991, with the Park Service, Fish and Wildlife Service, and Bureau of Indian Affairs all in favor of dam removal, the Department of the Interior wrote to FERC, firmly establishing its unanimous opposition to relicensing the dams (Deacon, 1991).

In 1990 the Elwha dams began to gain some national salience. The giant salmon, the national park, the Lower Elwha tribe, and the novelty of dam removal attracted the attention of New York Times northwest columnist Timothy Egan (T. Egan, 1990). Egan's work, in turn, attracted the attention of the powerful senator Bill Bradley (D-NJ) (Cantrell, 2011). Bradley had been interested in Native American issues since his days as a professional basketball player, when he ran basketball clinics on reservations (Bradley, 2013). He was familiar with the Olympic Peninsula from taking family vacations there. The novelty of the situation excited him as well – taking down a major dam had never happened before (Bradley, 2013). He was struck

by the Elwha restoration's potential to, as he later put it, "bend the arc of history to bring justice to Indian people whose lives were so frequently and unhappily interwoven with the rivers that the United States chose to develop for water supply and power" (Bradley, 2011). As the chair of the Senate Water and Power subcommittee and a powerful figure in the Democratic Party Bradley was well positioned to move on the issue. It also happened that he and Daishowa lobbyist Terry Bracy were childhood friends (Jensen, 2013; Finnerty, 2012). His aides began to contact stakeholders on the Elwha. Congressman George Miller (D-CA), who chaired the House Interior Committee, also took an active interest in the Elwha restoration (Jensen, 2013; Bradley, 2011).

Back in Port Angeles, local people began to worry. On April 28, 1990, the Olympic Peninsula Families Solidarity Rally went on "to save our Olympic Peninsula and jobs from the Politicians, Preservationists and other liars." Attendees were encouraged to bring effigies for burning, and a sense of humor (Anonymous, 1990). These people's desire for local primacy, though, could only work to a small extent. The issue of Elwha dam removal was inherently a federal one, given the involvement of FERC and the upper dam's locations in Olympic National Park. On occasion, though, the issue cropped up in the Washington legislature, in Olympia. In 1987-8, the Washington Senate looked into a bill studying the feasibility of dam removal (LaChasse, 1988a). This effort died after a barrage of lobbying from the company, which claimed that removal would cost too much (LaChasse, 1988b).

In 1991, the city of Port Angeles got more seriously involved in the Elwha decision. The major concern for the city, other than employment, was its municipal and industrial water supply (Hollis & Knutson, 1991). This came from Ranney wells, which draw on water from the ground below active water bodies. This means they rely on surface water, not on an aquifer. The two artificial lakes served as large settling pools, holding sediment and sending artificially clear water downstream. Dam removal would release decades of silt from behind the dams and potentially overwhelm the wells. The city council demanded the water supply be guaranteed at all times. There was no objection to this, and the tribe's lawyer, Russ Busch, noted that the Elwhas got their water from the river too (L. Harris, 1990c). The city identified its own interests with those of the mill for some time, but came to realize that, in fact, the mills were under no particular obligation to the city and that Port Angeles' best bet would be to look out for itself (Hollis & Knutson, 1991). Port Angeles hired a lobbyist to keep an eye on their interests as the issue was hashed out in Washington, DC (Modaff, 2012; L. Harris, 1991a).

The company remained reluctant to lose its dams and continued to urge FERC to issue new licenses. In May 1991, the CIs and the LEKT petitioned the Ninth Circuit Court of Appeals to review FERC's rulings on its jurisdiction over Glines Canyon Dam (Egan, 2007). The CIs were aware that this gave some of their allies "heartburn," as the companies had been somewhat amenable to negotiations, and

there had been hope for consultation within the coalition (Baker, 1991b). But the following month, the Department of Justice, representing the Departments of Interior and Commerce, filed a petition with the Ninth Circuit as well (USDOJ NPS, 2014d). A court decision could transform the situation entirely – for instance, what would James River’s responsibilities be if it owned an un-licensable dam in a national park (L. Harris, 1991c)? This was exactly the sort of blunt political instrument Al Swift and Brock Adams had feared (L. Harris, 1992a).

Swift’s nightmare was a sweeping legal decision forcing the loss of any license, the shutdown of the mill, the expensive extension and expansion of environmental strife, and a true “lose-lose” scenario. The companies also feared resolution by “meat ax” rather than by scalpel (Campbell, 2011). The tribe uneasily envisioned a long and expensive run of litigation wherein the company might abandon the dams due to expensive mitigation measures, with untold impacts on the mill and community, followed by nuisance litigation well into the future (R. W. Busch, 2007). Adams and Swift, in regular contact with all parties, began to carry legislation through Washington, DC. As a member of the House Energy and Commerce Committee, Swift (like Bradley) was well placed to do this. These policymakers built legislation intended to remove the dams and preserve the mill, while also seeking funding commitments from the President and from the Office of Management and Budget (Swift, 2012; “Swift sees little hope for dams,” 1991). Swift (2012) was zealous in defending his constituents and their landscape, Bradley (2013) was deeply committed

to working on Native American and water issues, and Adams, who had long been an environmental advocate, saw the Elwha as his chance for a legacy achievement.

Adams had been embroiled in an unsavory sex scandal that year, knew that he would be leaving public service in 1994, and likely wanted his name attached to something positive (Cantrell, 2011; Egan, 2007; Schaefer, 1992).

Public campaigning for the Elwha ramped up. The CIs whipped up support from their constituents (Friends of the Earth - Northwest et al., 1992). Lead environmentalist Shawn Cantrell, looking to get a strong bill introduced in Washington DC, urged a united front with the LEKT and Agencies (Cantrell, 1992b). The *Seattle Times* editorial page threw its weight behind removal (Editor, 1992). At the request of OPA leader Polly Dyer, Senator Dan Evans, now working with Seattle radio station KIRO, did an editorial broadcast favoring dam removal (Cantrell, 1992a; Evans, 1991). The city of Port Angeles sent a delegation to Washington, DC, met with their representatives, and ensured that the city's water would be protected (L. Harris, 1992c). After they threatened to withdraw their support entirely, the water was secured (L. Harris, 1992e). The company, seeing political support for dam removal rising, grasping the significant costs it would incur if it were required to put in fish passage and perform other necessary upgrades, and believing that it could secure its power supply, decided to support Swift's bill, which guaranteed compensation for the dam and power for the mill ("Daishowa likes bill to oust dams," 1992; Morgan & Teniguchi, 1992). Even local long-time removal opponents moved on to suggesting

options for the disposition of project land after dam removal (Adamire, 1992). Buck Adamire, who would fight the removal for many years, wanted the land returned to the public, a status that, to him, included Olympic National Forest, but not Olympic National Park.

In 1992, some regional economic interests spoke up in support of dam retention – the Northwest Public Power Planning Association passed a resolution to preserve hydroelectric projects, and ITT Rayonier, a forest products company and the largest private employer in Clallam County, intervened in early 1992 (Nowak, 1992). But this sort of involvement, late in the game, did not sway decision-makers, with all long-standing interests arrayed in favor of dam removal (Terry Bracy in Egan, 2007).

The Elwha Act

With all relevant stakeholders joined in one coalition, there was little resistance except from within Congress. Practically every member of Congress has dams in their district, and the precedent that would be set by a bill mandating dam removal made some members deeply uncomfortable (Weland, 2013; Jensen, 2013; Egan, 2007; Sonner, 1992). A compromise was found in mandating restoration – everyone could support that – which all key decision-makers had already established meant dam removal. The mill was guaranteed power at a cheap rate (102nd Congress, 1992). John Dingell, in particular, resisted Swift's demands, protesting that the bill wasn't ready (Swift, 2012; Cantrell, 2011). Dingell had long been Swift's political ally and

even patron, and he was well apprised on the dams from continued consultations with the GAO (Fultz, 1992; US General Accounting Office, 1992a, 1992b). Dingell had even sent a sharp letter to FERC chairman Martin Allday criticizing the commission's unresponsiveness to the agencies' points and demanding that FERC work with them (Dingell, 1992), but in the end he was skeptical of the dam removal plan and also hoped to use the Elwha as leverage to achieve other political goals (Cantrell, 2011; Egan, 2007). Swift insisted on the bill and after an energetic confrontation the two men came to an agreement (Swift 2012, Cantrell 2011). In a dramatic session at the very end of the 102nd Congress, the bill finally came to the floor of the House of Representatives. The Elwha River Ecosystem and Fisheries Restoration Act, PL 102-495, known as the Elwha Act, co-sponsored by Bradley and the entire Washington delegation (other than Speaker Tom Foley) passed the House and the Senate, and was signed into law by President George H. W. Bush on October 24, 1992.

The overjoyed dam removal coalition quickly vaulted into celebration. Olympic Park Associates billed the Act as “the product of more than five years’ work by a varied group of organizations: government agencies (NMFS, NPS, WDFW, USFWS), Native Americans (the LEKT), peninsula residents (Friends of the Elwha), and conservation and wildlife organizations” (Olympic Park Associates, 1992). A press release from the CIs and the tribe went out two days later. In it, Shawn Cantrell said, “Congress and the president are clearly stating that environmentally destructive action of the past can be rectified, that past mistakes can be corrected.” Tribal representative

Robert Elofson affirmed the action as part of the federal government's trust responsibility under the TPNP (the Treaty of Point No Point), and went on to say that "This bill recognizes the devastation to our cultural, social and economic well-being, along with the negative impacts on the salmon runs and ecosystem, caused by the Elwha dams." Tribal chair Carla Elofson called it "a long-sought first-step toward restoring the heart of the Elwha S'Klallam people – the wild salmon." She was sure to acknowledge the efforts of Adams and Swift as well as Bill Bradley and Norm Dicks (Cantrell & Elofson, 1992). The LEKT later hosted a celebratory dinner, presenting a hand-painted canoe paddle to Swift ("Swift bids farewell to Peninsula constituents," 1992). In Seattle, The Mountaineers hosted "The Elwha Party," inviting "all conservationists, environmentalists, boaters, hikers, campers, fish-lovers, dam-haters, park-users, tree-huggers, and anyone else who supports FREEING THE ELWHA" (Elwha Conservation Interveners, 1992b). Rutz also received a certificate of appreciation from his fellow environmentalists (Elwha Conservation Interveners, 1992a). In November, David Ortman released a poem:

So raise a toast, it's time to boast;
Of eyes and fish, both steely;
Hoist your glass, don't let it pass:
May the wine and river flow freely!
(Ortman, 1992)

The next step in the dam removal process was for the Secretary of the Interior to produce a report detailing what, exactly, Elwha restoration would entail. The CIs and the tribe began to pursue appropriations to perform the necessary battery of studies

for the Elwha Report, due in 1994. Under the new Clinton Administration and his environmentally enthusiastic Interior Secretary, Bruce Babbitt, political conditions appeared promising (Finnerty, 2012). In January 1994, the Secretary personally assured lead environmentalist Shawn Cantrell of a strong desire for removal to happen on “his watch” and added that he wished to be the one to set off the demolition (Cantrell, 1994b). Cantrell believes that in retrospect, Babbitt’s zeal for dam removal may have been counterproductive, inspiring and hardening removal opponents (Cantrell, 2011). The environmentalists began to discuss expanding intervenor meetings to include the companies (Cantrell, 1994b), and the agencies worked with the CIs in drafting the Elwha Report (Cantrell, 1993b; Finnerty, 1993). The CIs looked to put together a joint statement, with the tribe, the companies, the city of Port Angeles, and the state of Washington, in hopes that “Congress would be impressed by a single joint letter from the unique ‘coalition’ we would represent” (Cantrell, 1993c). At this point, though, the environmental community began to feel a little marginalized, complaining that the narrative in the draft Elwha Report indicated the debate as taking place between FERC and the agencies, disregarding the CIs’ contributions (Cantrell, 1993b). Their work continued regardless. The parties to the FERC jurisdiction suits sought and received a stay, and the case was later ruled moot after the Elwha Act took matters out of FERC’s, and the court’s, hands (Catterson, 1994).

REALpolitik

In January 1994, Babbitt sent *The Elwha Report* to Congress. The report confirmed the interveners' assumption that the only alternative for full restoration was dam removal. The highlight of the nearly 200-page document was a table displaying restoration prospects for all ten of the Elwha's anadromous fish runs. The table indicated that prospects were good or excellent for nine out of ten runs with both dams removed, and much worse with either or both dams standing (USDOI et al., 1994). Versions of this table would reappear in subsequent EIS's and papers (USDOI NPS, 1995a; Wunderlich, Winter, & Meyer, 1994), and the table was credited for laying out the impacts of dam removal in a clear and accessible format (Wunderlich, 2012; Baker, 2012). The Elwha Report underlined that the settlement was negotiated, not litigated, and called the solution a "win-win." Senator Patty Murray (D-WA) looked to introduce an amendment to the Elwha Act to ease funding for the dam removal (Senator Patty Murray, 1994). This was the last good news the dam removal coalition would receive for some time.

In the same month that Babbitt released *The Elwha Report*, the *Peninsula Daily News* reported that support "runs deep to keep two Elwha dams" in the North Olympic Peninsula, with some calling the removal plan a "land grab" (Camara, 1994a). In this spirit, the scattered anti-removal letter-writers and commenters that had been agitating in the North Olympic Peninsula for several years organized into a more politically formidable force. In 1992, a group of "local folks," including "old-timers

who have hated the government from way back when,” organized into a group called Rescue Elwha Area Lakes (REAL). REAL began to intensively oppose dam removal (Chastain, 2011; Camara, 1994b). Led by Marv Chastain, a former Seattleite who had retired to Port Angeles, REAL employed a wide variety of arguments in favor of dam retention. Turning the environmentalists’ support of charismatic wildlife against them, REAL claimed to speak for trumpeter swans (*Cygnus buccinators*), which used Lake Aldwell during migration (Chastain, 2014; Chastain, 2011; Sisson, 1993). The presence of the swans prompted concern from the national Trumpeter Swan Society as well (Jordan, 1990). These large and proverbially graceful birds were used to establish REAL’s green credentials, and the potential removal of their and others species’ lake habitat to cast doubt on the conservation interveners’ true intentions (Chastain, 2014b). It is notable that the Trumpeter Society later claimed that REAL misrepresented them (Gillete & Jordan, 1994). REAL labeled the conservation groups “so-called” environmentalists, a phrase that had been in use since at least 1990 (Brannin, 1990). Chastain still maintains that the dam removal was and is part of a larger plot, the Wildlands Project, to evict rural people and return the western United States to wilderness (Chastain, 2014a). The Wildlands Project, now called the Wildlands Network, is an initiative attempting to increase habitat connectivity for wildlife (The Wildlands Network, 2014).

REAL also waded into the scientific debate, claiming that the dams did not harm salmon runs and that removal would, in fact, harm fish by inundating downstream

reaches with silt group (“Endangered rivers list names Elwha,” 1995; McNeece & McNeece, 1995; Mosiman, 1996b). Some of their members had held this stance, that good fish passage facilities past the dams would be all the Elwha salmon needed, for years (Adamire, 1990b). They pointed out successful examples of fish passage in other dams and rivers (Chastain, 2011; Chastain, 1995b). Sure that REAL’s system would work, Chastain said that he expected to “get a big charge the first time I see salmon in the river swimming above the dams” (Camara, 1996). REAL also suggested that silt releases would result in the flooding of downstream property, including the Lower Elwha Reservation (Chastain, 2011). To arguments about the lack of spawning gravel in the lower river, removal opponents suggested that it would be cheaper and easier to dump “a few truckloads of gravel” into the stream (REAL, n.d.-a; Towslee, 1994). REAL engaged an unaffiliated fish biologist, Robert Crittenden of Sequim, WA, to produce a new restoration plan, which promised affordable salmon restoration while retaining the dams.

In all of this, REAL tapped into a deep vein of discontent with the government that had festered in the North Olympic Peninsula at least as long as Olympic National Park (Hewett, 2011; Lundsford, 1990; Short, 1999; Smith, 1990). The Owl Wars cast their shadow, but so did the concerns of inholders, who feared that their private properties inside Olympic National Park were under threat, as well as people who disagreed with park policy on such issues as the management of introduced mountain goats and the reintroduction of wolves (Associated Press, 1997; Robinson, 1999).

People were also worried about the role of the United Nations (Olympic National Park is a UNESCO World Heritage Site) and its eventual control of the United States (Hewett, 2011). Advocates assembled all their issues with the Park and flung them into the same rhetorical cauldron, complaining that the Park “digs deeper into our pockets while kicking us in the teeth” (Lundsford, 1990). This mixed with layman’s assumptions about the destructive potential of dam removal and affection for the reservoirs to stoke discontent. By the mid-1990s the town of Port Angeles was awash in signs demanding to keep the dams (Mentor, 2013; Robinson, 2012; McNulty, 2012).

In 1993, redistricting moved Clallam County into Norm Dicks’ (D-WA) sixth district. Dicks remembers walking into a town meeting of some 120 people at about this time. As he entered the room, someone in the crowd said “Let’s show Congressman Dicks how we feel about taking the dam out on the Elwha! All opposed?” At which some 115 people stood up (Dicks, 2013). Such was the flavor of public opinion. REAL put together videos presenting their views on the lakes, the dams, and the park, and spread them as widely as possible. They found sympathetic audiences among conservatives and in the hydropower industry, as Tacoma City Light helped REAL distribute its tapes (Chastain, 1994; Pryne, 1994). Lauri Phillips, a Republican running against Dicks in 1994, agreed to distribute tapes to members of Congress and their staffs in Washington, DC (Chastain, 1994). The movie warned of dam removal creating muddy, dusty messes and of the end of swans, ospreys, and other species

found at the lakes. The decline of the salmon runs was blamed on overfishing and large populations of marine mammals, pointing out that the salmon had held on in the river for some decades after the dams, and that there were undammed rivers in the Olympic Peninsula with poor fish runs. They identified the “Virgin Earth Cult” as the villains of the Elwha issue (Chastain, 1995a).

In the midst of this ferment, the *Daily News* released an editorial broadly supporting dam removal but worrying over funding (Editor, 1994). The Park Service carried on with the restoration process. Once sufficient funds were accrued, the NPS prepared two EISs, one (the programmatic EIS) on the actual subject of the action (Elwha ecosystem restoration), and the other (the implementation EIS) on how restoration implementation would work, necessitated by the engineering challenges and environmental impacts of Elwha restoration. In October 1994, the Park Service released the draft programmatic EIS, which asserted that removal was the only way to fully restore the fishery and that the chances for recovery for most runs were hugely better with both dams removed (USDOJ NPS, 1995a). But this didn’t bring any more dollars for dam removal. The company worried that with the dams in limbo, they would have to shut down the mill, and told Norm Dicks so (Noonan, 1994). In November, American politics changed, and so did the politics of the Elwha dams.

Slade Gorton

In 1994, Newt Gingrich and his conservative colleagues swept into power in Washington, DC. This emboldened the anti-environmental movement nationwide, at all levels of government. Out of this change, the greatest challenge to the dam removal emerged in the person of Senator Slade Gorton (R-WA). Gorton had co-sponsored the Elwha Act, along with the rest of the Washington delegation, but had not been enthusiastic about it, and only expressed his support for it as the least-bad option at the time (Senator Slade Gorton, 1994). In part, his support had been a favor for his former colleague Brock Adams (Winter, 2011).

Gorton's power base in conservative eastern Washington was facing (and continues to face, in 2014) its own dam removal question on the Snake River. The Snake, a major tributary of the gigantic Columbia River, is partly controlled by four large hydroelectric dams. Environmental groups have targeted these dams for removal for many years; the dams are much larger, ecologically, economically, and politically, than Elwha or Glines Canyon Dams. Gorton's constituents worried that dam removal on the Elwha would set a precedent for the Snake. He was also, as a fiscal conservative, concerned about the costs of removal. Gorton sat on the Senate Interior Appropriations Subcommittee, placing him in prime position to put his thumb over the metaphorical hose. After the Gingrich Revolution, Gorton swiftly withdrew his support from the Elwha Act he had co-sponsored. When Congressman Norm Dicks, in the aftermath of the Republican landslide, asked Gorton about this shift over the

Elwha, Gorton's response was "Welcome to the party" ("GOP likely to ax dams' destruction; Elwha Fish-Run Plan WOULD Be Expensive," 1994). In 1994, Dicks lost Clallam County, (though he comfortably won reelection), and responded by deprioritizing the Elwha effort (Mentor, 2013). He suggested that fish ladders might have to be the best answer (Camara, 1995b). Although the projects retained support from Democrats and from Secretary Babbitt, Gorton's opposition was, in Newt Gingrich's Washington, sufficient to derail a dam removal, especially an expensive one like the Elwha.

From his chair on the subcommittee, Gorton proceeded to release money for the Elwha in a trickle. For instance, in fiscal year 1997, the president's budget included \$110 million for Elwha dam removal ("Dam money in budget," 1996). The Senate committee released \$4.7 million (Mosiman, 1996g). The next year, the president requested \$24.9 million – Gorton released \$3 million (Cantrell, 1997a, 1997b). In a 1995 press release, Gorton laid out his priorities: first, that the mill stay in Port Angeles; second, that the Port Angeles community approve of the decision, especially dam removal; third, to accomplish "a degree of fish restoration." He specifically stated he did not believe that dam removal would achieve these goals, "given current fiscal constraints" (Gorton, 1995). This was a neat formulation for Gorton to use since he effectively embodied those fiscal constraints, himself. As congressional aide Tom Jensen notes, the Elwha Act was very much a business-friendly measure, with

significant concrete benefits for the company, the mill, and the Port Angeles economy, but the Gingrich revolution was not only about business (Jensen, 2013).

REAL's opposition gave Gorton political cover and made his fight into the people's fight – he wanted the decision to be made by the people of Clallam County (McNulty, 2012; Gorton, 2012). Gorton's opposition afforded REAL a certain amount of stature, and certainly gave them more time to work – if the government had purchased the dams in 1995, REAL would have had little to suggest. But there was no unity of action between Gorton and REAL. REAL did bring their case to Gorton, and were assured of his intention to keep the dams standing, but did not make any constructive contact with the Senator (REAL, n.d.-b). REAL's hope of success lay in convincing enough people that they were right and that the river would be better off with the dams in place, to first pressure Congress into defunding the Elwha Act, and, second, get the dams relicensed. REAL accomplished the first goal for some time, but had no effective long-term political strategy to relicense the dams.

The Citizens' Advisory Group

Dismayed by the rise of an anti-removal coalition saying “not only no, but Hell No” (Robinson, 2012), conservation advocates and the LEKT continued to lobby the public for support, and Congress and the Clinton Administration for funding (Eberhard, 2013; Bohman, 1995; Cantrell, 1996b). However, for all that they urged people to write letters and tried to spread a message that fish equaled jobs (Robinson,

2012), they did not achieve much leverage in Slade Gorton's office. It was difficult to oppose the scenic lakes and the recreation people enjoyed there – CIs tried to make sure to call them reservoirs, in hopes of making the distinction between the artificial and the natural (Robinson, 2012; Bohman, 1994). In June 1995, the Park Service released its final EIS on restoration, confirming that nine out of ten salmon runs would have good or excellent prospects for restoration with both dams removed. This did not alter Gorton's position. Across the Elwha's political spectrum, everyone agreed that delay helped no-one and that the decision over the Elwha's future should be made soon, for the sake of the community and the fish alike (Mosiman, 1994; Northwest Conservation Act Coalition, 1994; Trout Unlimited-Northwest Steelhead and Salmon Council, 1994). The CIs considered other angles from which they might litigate the issue along, but they didn't see a way that any option might lead to the dams coming out – all else aside, if they forced dam removal through legal action, the companies may not have had the money to pay for it (Broman, 2012; Cantrell, 1994a).

In 1995, as removal advocates cast about for options, a plan was hatched by Willy O'Neil of the fish advocacy group Long Live the Kings, Bill Robinson of Trout Unlimited, Joe Mentor, a Republican operative and Olympic Park Association board member, and Bart Phillips, the executive director of Clallam County Economic Development Council. The men felt that the community needed to be consulted directly in order to form a coherent and well-informed opinion on dam removal and

“provide cover” (Campbell, 2011) for legislators to appropriate money to buy the dams and fund removal (Phillips, 2012; Robinson, 2012; Campbell, 2011).

The community’s representative bodies had not come out strongly for one side or the other – the Port Angeles Chamber of Commerce’s 1995 position statement, for instance, emphasized that they wanted a stable supply of water and power and compensation for the company’s losses, so they still supported federal purchase of the dams, but not necessarily dam removal. The Port Angeles City Council, throughout the issue, kept its issues carefully circumscribed – jobs and water supply, and no specific action on the dams (“City mixed on stance,” 1992; L. Harris, 1992b).

The only strong, coherent voice that had been speaking on behalf of the North Olympic community was REAL. Friends of the Elwha spoke on behalf of their local members, but in a Port Angeles full of anti-removal signs, they could not take on the mantle of the broader community. REAL had no authority to speak for anyone beyond its members, but it filled a political vacuum. An example of REAL’s stature: in September 1994 the *Peninsula Daily News*, looking to present a balanced account of the Elwha controversy, ran a large feature built around two interviews. For the dam removal side, the paper interviewed Park superintendent Maureen Finnerty. On the retention side, an interview with REAL’s Marv Chastain was given equal billing (“Dams draw both sides,” 1994). By mid-1995 Chastain, confident of success, said of

the dam removal, “That body is dead there, let’s drag it off the floor,” and urged REAL’s restoration scheme be implemented (“Dams plan hits snag,” 1995).

O’Neil, Robinson, Mentor, and Phillips’ idea was to build an advisory committee of well-respected community leaders to consider the issues, hear from each significant stakeholder group and from technical experts, and then weigh in on the Elwha and the jobs at the mill (Mentor, 2013; Phillips, 2012; Robinson, 2012). This seemed like the sort of thing that might be effective in dealing with Slade Gorton – Gorton and others in the Washington delegation had been requesting local guidance on the Elwha issue (Citizen’s Advisory Committee, 1996; “Committee to study Elwha dam removal,” 1996). The tribe was very skeptical, and so were some of the conservation groups, but by 1995 they didn’t have many other options (Robinson, 2012). Marv Chastain was skeptical too (Winter, 2011), but this mattered less as REAL was not asked to sign off on the idea. After a series of meetings, the four men began to approach the first few committee members, well-respected local residents of unimpeachable character and integrity. Trout Unlimited pieced together some funding to support the group’s efforts (Robinson, 2012), and the twelve-member Elwha Citizens Advisory Group (CAG) (it did not wish to be called a committee to emphasize the ad hoc nature of the organization (Egan, 2007)) was formed. The group as a whole was very difficult for critics to attack (Winter, 2011). Most of the group’s members were broadly impartial on the subject of dam removal. The exceptions to were Orville Campbell, a long time representative of both James River and Crown Zellerbach, who presumably wished to

see the dams purchased on behalf of the company, Glenn Wiggins, the head of Slade Gorton's Clallam County Advisory Committee, and Harry Lydiard (a former county commissioner) and Jim Walton (a former chair of the Washington Fish and Wildlife Commission), both conservationists. But each of these men was considered open-minded and fair. Moreover, the people at the table were businesspeople who could be expected to potentially change their minds if not their feelings (Phillips, 2012).

The CAG members were motivated to move Port Angeles, Clallam County, and the Elwha River toward some sort of resolution – they, like most other stakeholders, agreed that the status quo of uncertainty and antagonism benefitted no one – but they were not quite sure what status or power they really had. In late 1995, the committee contacted the Washington delegation and the Secretaries of Commerce and the Interior, to ascertain that these decision-makers would be open to the advice of such a local group as themselves. The answer was positive. Buoyed by this approval, the CAG held a series of meetings to agree on an approach. They put together a list of seven goals and objectives:

- 1) To maintain family-age jobs
- 2) To provide efficient and reliable electric power for current and potential future Elwha dam users.
- 3) To find fiscally responsible and achievable solutions for fish restoration.
- 4) To secure adequate good quality water for Elwha Basin water users.

5) To identify specific measures to address local concerns about implementation of modification of the Elwha Restoration Act.

6) To make the solution cost-effective for the nation's taxpayers.

7) To remove the threat of litigation for current dam owners and economic uncertainty for community resulting from the unresolvedness of the issue.

(CAG, 1996)

Having done this, the CAG invited all stakeholders to share their own perspectives. They received presentations from the company, the tribe, the environmentalists, the paper companies, REAL, the Bonneville Power Administration, and the National Park Service, and held a well-attended town meeting as well (Mentor, 2013). They established that the companies did not want to relicense the dams, but to sell them. In April they published their findings, saying that the case for restoration by dam removal was ecologically “compelling,” raising concerns over the cost, and suggesting a phased plan for dam removal:

Phase 1: The federal government should buy the dams, begin restoration actions, and perform studies to inform the future.

Phase 2: Continue to work on fish outplanting and water quality improvements.

Phase 3: Remove Elwha Dam and study the middle Elwha and its tributaries.

Phase 4: Evaluate the Elwha Dam removal, continue water quality protection and restoration actions. Continue to monitor and assess through the life cycle of initial

outplanted fish.

Phase 5: After a full assessment, remove Glines Canyon Dam

(CAG, 1996)

This cautious approach potentially offered satisfaction for nearly everyone (except for REAL) and was widely accepted as solidly representing the community (V. G. Egan, 2007; Hughes, 2011). The conservation interveners worried about the CAG's position being taken as more authoritative than that of long-standing Elwha stakeholders like the company, the tribe, or themselves (Cantrell, 1996a), and noted that while the CAG viewed the Elwha as a local concern, in fact it had regional and national repercussions (Pearl, 1996). In public, though, they promoted this takeaway message: that the community wanted to remove the dams (Cantrell, 2011). The CAG's report gave the companies a stronger sense of the possibility that the issue might be resolved, and the dams finally purchased (Mosiman, 1996d). It offered the tribe, fishers, and scientists the prospect of a roadmap to restoration and a free-flowing Elwha River. The tribe came out in support of the finding, with the caveat that they would prefer only one dam removal project to disturb the river rather than two (Kelly, 1996). The agencies, also, wanted the dams to be taken out concurrently – it would demand less documentation, less money, less time, and less perturbation of the river (Mentor, 2013; Cantrell, 2011) – but the CAG wanted to proceed cautiously reasoning that their plan was less expensive year by year, and therefore perhaps easier to fund (Campbell, 2011).

The CAG's report fatally weakened REAL. REAL had claimed to support "the real people," which to them were granges and realtors, had claimed to have done its scientific homework, and had been sure that its approach to restoration would be the best one (Chastian, 1996; Mosiman, 1996c; Don Rudolph, 1996). But its authority in all of these claims was hollowed out when a group of better-established locals with similar credentials and interests took up the same questions and received different answers. Despite REAL's complaints, there was not much anyone could say to argue that REAL was more representative of the Port Angeles community than the leaders on the CAG. In the view of Brian Winter, the CAG's report was the turn of the tide (Winter, 2011). Marv Chastain derided it as "a left-handed way of getting citizen approval" (Mosiman, 1996d). Bart Phillips noted that the CAG had, in fact, gotten a presentation from REAL during its process (another example of REAL getting the same political status as the other stakeholders), and had been able to take its ideas into consideration (Mosiman, 1996c).

At the same time as the CAG released its recommendations, the Park Service released its draft implementation EIS (USDOJ NPS, 2005). This document indicated a surprisingly easy engineering job, clearing the silt using natural erosion rather than carrying it out in trucks or through some other laborious method, and it promised net economic benefits to the community – the removal itself would bring an influx of cash during deconstruction, followed by increases in sport fishing and tourism which

would drive an increase of an estimated 446 permanent jobs and \$4.6 million in payroll (Mosiman, 1996b; USDOJ NPS, 1995b). The net gain in recreation and tourism dollars had already been estimated at \$133 million (USDOJ NPS, 1995a). In response to public comments criticizing the \$113 million price tag on dam removal, the Park Service noted that adding passage to the dams would indeed cost less – \$38 million – but would produce 12% of the fish (Mosiman, 1996f). Brian Winter was delighted with how easy the engineering appeared to be (Mosiman, 1996b). Marv Chastain called the Implementation EIS “an environmental obscenity,” a “disaster that would wipe out the best five miles of Chinook spawning habitat in the state” (Mosiman, 1996b). In fact, the EIS noted, that rivers tended to recover from traumatic silt events in 2-7 years (USDOJ NPS, 1995b). The document prompted Rep. Rick White (R-WA) to publically urge Elwha removal as a “perfect laboratory” for northwestern salmon restoration (Associated Press, 1996). Despite White’s being a Republican, he was a moderate from Western Washington (Govtrack, 2014). He believed in Elwha dam removal as a beneficial move, and planted his environmentalist flag there.

In 1997, a thwarted REAL took its efforts to Olympia, working with their representatives, Republican Jim Buck and Democrat Jim Hargrove to pass a bill mandating that their and Crittenden’s restoration plan be implemented as an interim management option. The vision was a system of planting fish eggs upstream, and using screens with a trap and haul or fish ladder system to allow for safe migration,

much like the companies' suggestions during the FERC process ten years before (Mosiman, 1997a). The editors of the *Daily News* noted, though, this amounted only to an attempt by REAL to portray itself as a group that cared about the fish and about restoration – NMFS, which had rejected most aspects of REAL's plan long before, would have to approve any such changes, and the other necessary Elwha stakeholders had not been consulted on the matter (Editor, 1997). REAL represented to legislators that it had the backing of Clallam County Commissioners (Mosiman, 1997b). The county commissioners quickly moved to distance themselves from REAL and the resulting bill, which died in committee (Mosiman, 1997c).

The real power continued to rest with federal appropriators. The CAG decision offered Slade Gorton a way to maintain his support of rural communities while agreeing to dam removal, and his initial reaction was to voice support for funding federal acquisition and restoration work (Mosiman, 1996d). But that year he only released another \$4 million for purchase, about the same amount he'd released in the past. At this rate, removal supporters noted, it would take the federal government eight years just to buy the dams (USDOJ NPS, 1995b). Along with limiting appropriations, Gorton tried to get rid of the issue by including, in the FY 1997 appropriations bill, a clause authorizing the state of Washington to purchase the dams for one dollar each, after which the state would be responsible for removal and restoration. This presented many obvious complications, the most notable one being that the state had no desire to take on this responsibility, no matter how low the price

(Mosiman, 1996e; Murray, 1996). Shawn Cantrell, while he was sure that the state would not buy the dams, worried that all this might communicate to other skeptical members of Congress that the dams had now become a state matter, and that there was no need for the federal government to pay attention to it (Cantrell, 1996c).

Funding

Political tricks aside, Gorton no longer had any real justification for opposing the dam removal coalition. Removal stakeholders began to shift their outlook on dam removal from whether to when and how (Bill Robinson in Dawson, 1998). Gorton had admitted that he was impressed by the CAG's compromise (Hughes, 2011), and he could not but concede that all stakeholders (except for now-marginalized REAL) were united in favor of the federal purchase of the dams, and their removal. But he continued to try to have it both ways. President Clinton's 1998 budget included \$154 million for Elwha removal (Associated Press, 1998b). In February, Gorton agreed to go along with dam removal, announcing that there would be acquisition funding at a town hall meeting in Port Angeles (Lincoln, 1998a), and saying that he hoped this would satisfy the "environmental extremists" in the Clinton administration (Associated Press, 1998a). But then, in April, he introduced S. 1904, a bill amending the 1992 Elwha Act in such a way as to allow federal purchase of the dams under the condition that, "a Federal or State agency shall not require, approve, authorize, fund, or undertake any action that would" alter any Snake or Columbia dams. This would be his condition for funding the Elwha removal.

The political poison pill predictably drew criticism from conservation groups, who saw it as a naked attempt to hold the Elwha restoration “hostage” (“Gorton has hopes for Elwha deal,” 1998), and prompted the company, which wanted to wash its hands of the dam and the river, to demand clarification on what this meant for them (Associated Press, 1998d; Lincoln, 1998b). In accord with the CAG’s recommendations, S. 1904 also mandated 12 years of evaluation between the removal of the Elwha and Glines Canyon dams. Norm Dicks called the bill “outrageous” and “obviously political,” noting that the removal of one of the Snake or Columbia dams would require congressional approval regardless (Dicks in Associated Press, 1998c). Senator Murray and Rep. Elizabeth Furse (D-OR) vocally opposed Gorton’s bill (Associated Press, 1998c). Gorton claimed that he, having agreed to Elwha removal, needed his opponents to work with him now (Associated Press, 1998d). The bill died in committee but stood as a reminder of Slade Gorton’s loyalties and priorities.

Slade Gorton fully dropped his opposition to Elwha removal in June 1999 (Morey, 1999). Gorton explained this move by acknowledging that he needed to work with the same administration that backed Elwha removal in 1999 and 2000, and also explained that he felt there wasn’t enough time left in the Clinton Administration for anyone to take out the Snake Dams. If Al Gore was elected in 2000, he said, that might change matters (“This might be year for action on the Elwha Dam,” 1999). There are some who believe that Gorton did this in order to give himself an environmental sheen for

his 2000 Senate race (Bogaard, 2012). On October 16, 1999, Norm Dicks, Slade Gorton, and Bruce Babbitt agreed that the dams should be purchased by February 29, 2000 (Gottlieb, 1999). Four months later, Secretary Babbitt, the companies, and the LEKT signed a declaration marking the federal purchase of the dams and preparing for their operation to be overseen by the Bureau of Reclamation. The purchase of the dams was not the restoration of the river, though, and as one Port Angeles letter-writer said, the best way to help the Elwha fish was going to be to vote for Gorton's opponent in the next election (Johnson, 1999).

A ceremony to mark federal purchase of the dams was held in February 2000. With federal acquisition, Babbitt crowed, "we have irretrievably and inexorably crossed the divide which will result in the removal of these dams and the restoration of these salmon and steelhead runs." Babbitt also optimistically said that the dams were likely to come out in 2-4 years – the estimate at the time was that the teardown would start in 2003 (Ramzy, 2000b). For Daishowa America president David Tamaki, "We stand next to a hydroelectric dam that now more closely resembles a bridge that in the future will connect our differing interests and concerns; economic, environmental, tribal, ecological and government" (Ramzy, 2000a). Slade Gorton, who did not attend the ceremony in person, pledged to support President Clinton's \$15 million budget request for the Elwha, but he presciently doubted that the project would be finished in

only a few years.²¹ He warned Babbitt against casting his eyes upon the Snake dams, though, writing to tell him that, “you will not be making a similar trip across the Cascade Range with a hammer²² in your hands” (Ramzy, 2000a). The next month, the Fort James Company (the latest iteration of the paper company) handed operations over to the Bureau of Reclamation. BPA would sell the power, and any money the dams made would go to the National Parks Foundation, not the mill (Hamilton, 2012). In November 2000, Gorton lost his re-election campaign to Maria Cantwell (D-WA), and the only thing left was to implement the removal. Brian Winter declared that with both dams removed, the Elwha would be the first ecosystem to be restored from the mountains to the sea.²³ Such were the ecological stakes to removal advocates. Winter receives tremendous credit from many of the other Elwha stakeholders for leading the restoration project through these challenges and on to completion (Weland, 2013; Robinson, 2012; Finnerty, 2012).

To the tribe, the dams’ transfer to federal hands was the beginning of the return to the ecosystem their ancestors, and their living elders, had known. The removal promised not only salmon, but seafood from the near-shore and estuarine environment. LEKT restoration director Michael Langland quoted an elders’ saying, “When the tide is out, the table is set,” but noted sadly that by now, in 2000, there were no more shellfish or

²¹ He still expects the lake sites to be eyesores for many years to come (Gorton, 2012).

²² Babbitt had a green sledgehammer that he liked to bring to dam removal celebrations around the country.

²³ Though it would later be beaten to this mark by the Sandy River dam removals, in 2007-8.

crabs to be had at the much-reduced river mouth (Ramzy, 2000d). To tribal councilman Russell Hepfer, the return of the Elwha also meant the renewal of the tribe's culture, but he noted that after all this time, he wouldn't believe anything until he saw it (Ramzy, 2000d). The tribe's traditional subsistence lifestyle would be buoyed by the return of the marine and aquatic life, but so would their modern economy, with opportunities opening for commercial fishing and guiding. From the tribe's perspective, there was little difference between the economic, ecological, and cultural benefits of dam removal – Frances Charles later said that, “we, as Tribal Council and staff, are following the path of our elders set for us to protect and preserve our natural habitat” (Ollikainen, 2010a).

Anti-removal agitation continued in an outpouring of letters to the editor of the *Peninsula Daily News*. The project was said to destroy “beautiful lakes” (another writer called them “pristine”) and deny people the fun they'd had on them in the past (Editor, 2000; Kitz, 2000). Local control in the face of outside forces was also supported. One letter writer, bemoaning the politicization of the river, was sure that both fish and dams would thrive with the addition of “a little common sense” and a state fish and wildlife director elected by Washingtonians. Another yearned for the days when the peninsula was allowed to log its own forests and fend for itself without depending on the government, and compared people holding Save the Dam signs to the iconic image from Tiananmen Square of a college student in front of tanks. He also brought up the price of restoration, estimating that the price of dam removal

would be \$133 per fish, and \$11 per fish in lost electricity (Editor, 2000). Another writer estimated anywhere from \$256 to \$333 per fish (Editor, 2000). Most colorfully, past REAL president Don Rudolph, calling upon the phrases of conservative broadcasting legend Paul Harvey, purported to tell “the rest of the story,” saying that the “wise wizards of Washington, DC” had come to town, deriding Bruce Babbitt as the secretary of the “inferior,” and saying that Slade Gorton had been “brainwashed” into believing that dam removal would help fish. He claimed that the people of Port Angeles remained heartily opposed to dam removal (Don Rudolph, 2000). “Stop Elwha Dam Removal” flyers appeared on windshields and bulletin boards around Port Angeles – apparently distributed by one BJ Allen, who had not been interested in dam politics until he attended the February 2000 transfer ceremony (Ramzy, 2000c). Some continued to warn that the sediment movement and floods (Editor, 2000; McKeown, 2000).

Resource agencies received funding in 2000 to study flooding in the Elwha watershed (Gottlieb, 2000). Later on, levees were raised to protect downstream property (Gottlieb, 2011a). Such studies were not universally approved of, though – to Ethan Harris of nearby Sequim, WA, “a frog living along the bank knows as much about the effects of the dam razing as a bunch of elite environmentalists pushing an agenda” (E. Harris, 2006). Ray Beaumariage of Port Angeles claimed that he had submitted a resolution to save the dams to the state Grange years before, and that it had passed strongly (Beaumariage, 2001). This sort of action indicates something of a

generational divide – granges were once powerful in rural America (McConnell, 1969), but had little power over dam removal on the Elwha. It is worth noting that some letter writers did favor dam removal (McNulty, 2007; Penn, 2000), but their voices were not as vehement during this time as removal opponents'. Don Rudolph might have been right, and the people of Port Angeles may still have broadly opposed dam removal, but these people did not have much more political leverage after 2000. The Clallam County Commissioners, for their part, bided their time until September 2000, when they sent a position letter to Slade Gorton and other decision makers endorsing the concurrent removal of the two dams (Short, 2000). Orville Campbell noted that it was nice for the county to take a position, but that they were about six years late (“Dam removal position letter tabled for now,” 2000).

With Gorton out of office, Elwha appropriations went through Norm Dicks. Dicks, a passionate fisherman who hoped to catch a hundred-pound Chinook some day himself (Ollikainen, 2010a), had long supported dam removal, but now faced the challenge of funding an enormously expensive project. The total bill for the entire Elwha restoration is estimated to be \$324 million (USDOJ NPS, 2014b). In the first decade of the 2000s, Dicks appropriated money, making an estimated 15 separate appropriations of roughly \$20 million each, calculated to keep the project rolling but to not use too much of the National Park Service’s annual budget on one project in one park (Dicks, 2013; “Panel clears funds for Elwha project ,” 2002). To ensure support, he brought the Interior appropriations subcommittee to the site, and got

them, Republicans and Democrats, on board with the project (Dicks, 2013). Dicks gets widespread credit as a political “hero,” the only person who could and did ensure that the removal appropriations actually happened (Jensen, 2013; McNulty, 2012; Bracy, 2013; Bradley, 2011; Rutz, 2011; Cantrell, 2011).

How to Free the Elwha

“But what was a great idea back then, is a terrible idea in the year 2001.”
Orville Campbell (in Burke, 2001)

With funds now coming in, managers set about planning the on-the-ground restoration. The actual dam removals cost \$26.9 million (USDOI NPS, 2014b). The Elwha’s most expensive aspects were ancillary projects, most notably new water treatment plants. Environmentalists criticized the “gold-plated” facilities (Cantrell, 2011; Broman, 2012), but water treatment proved to be very important during heavy silt releases during the dam removal (USDOI NPS, 2014a). The tribe’s steelhead hatchery (\$16.4 million) and the WDFW’s Chinook hatchery were also very expensive. Studies went on throughout the decade in response to changing needs and circumstances – while the Elwha project as a whole received a great deal of federal money, the scientific studies attached to the project were inconsistently funded (Peters, 2012; Pess, 2012; Hawkins-Hoffman, 2012). Bull Trout (*Salvelinus confluentus*) and Puget Sound Chinook were listed in 1999 (Shared Strategy Development Committee, 2007)s. Other monies went toward restoration preparations

such as raising native plants to revegetate new riverbanks (D. De la Paz, 2008; “Post-dam plantings envisioned,” 2005), the placement of logjams in the lower river to improve habitat below the dams (“Historic salmon count under way on Elwha River,” 2002), and alterations to hatchery operations to better replicate the fishes’ natural environment by, for example, making them wary of shadows – hatchery fish sometimes learn to associate shadows with food, but in the wild, shadows often mean predators (Silliman, 2001). A diverse team of scientists from agencies and the tribe monitored the river in anticipation of massive changes after dam removal (for example, Callis, 2011; “Looking up close at young Elwha salmon ,” 2002; Vasquez, 2005). Local students from grade school to college levels took part in citizen science project to measure the river’s features before, after, and during dam removal (Hanson, 2014; Cokelet, 2004). The environmental organization American Rivers, the nation’s leading advocate of natural rivers, and by now the lead environmental organization in the Elwha effort, put together three-dimensional visualizations of the Elwha Valley along the way to restoration (Bogaard, 2011; Garrity, 2011; “How will it look when the dams are gone?,” 2006). Such efforts can make restoration projects more concrete and reassure skeptics – one common fear was that the project will leave an ugly mud flat behind it (Gorton, 2011; Rudolph, 1995). Fears and sorrow continued to be expressed by some local people, with the dam removal being cast as a “national disaster” and the dams as “two old friends,” which “need to be shown the respect they deserve in their final year of life” (Green, 2010; Lamoureux, 2010), but these views, though earnestly held, amounted to sour grapes.

The contract for the water treatment plant was awarded in 2007, and ground was broken the following year (USDOI NPS, 2014e). At the groundbreaking ceremony for the water plants, Norm Dicks was sure to credit Brock Adams and Al Swift for their crucial roles in passing the Elwha Act 15 years before (Gawley, 2007d). Some observers lauded the water treatment contract as the true beginning of the dam removal (Elofson 2011, Gawley, 2007b). Olympic National Park, looking to boost the project's image, commissioned artist Larry Effert to make a painting of a restored Elwha River Valley (Chew, 2007). The start date for the dam removal was pushed back to 2009 in response to water quality and treatment issues and new fish listings (Gottlieb, 2006), and then again to 2012 (Gawley, 2007a). These delays concerned the tribe and other removal advocates, but there was not much that anyone could do to make the money flow faster ("Delay disappoints many connected with dams project," 2007). In the end, the removal date was pushed forward from 2012 to 2011 thanks to the American Recovery and Reinvestment Act of 2009 – the Stimulus. To the delight of all removal advocates, the stimulus provided a \$54 million dollar boost to put the project over the top (Dicks, 2013; Finnerty, 2012).

To some, the removals were a source of pride. One science teacher called it "a golden opportunity to be part of something big," saying, "the Elwha project is known around the world, and it is in our backyard" ("Middle schoolers share findings," 2006). This worldwide importance was often mentioned as boosting the Elwha and its community

(Gawley, 2007b, for example). A local environmental education organization featured the Elwha watershed in its programs, working with the tribe to integrate culture into their work along with science (Hanson, 2014). Later on, volunteer trips to remove non-native plants from the Elwha valley were promoted with the words, “Be a part of history. Even the fish will thank you” (“Elwha volunteers rid valley of weeds,” 2007). NPS spokesperson Barb Maynes promised massive ecological effects: “more fish, more birds, more insects, more bears, more of everything” (Gawley, 2007c).

In 2010, plans began for the celebration of the actual dam removal. Olympic National Park promoted the theme “Last Dam Summer,” and began to distribute buttons for people to wear and broadcast the message (Dickerson, 2010c). This was a bit of an echo of the pro-removal buttons environmentalists had worn to meetings twenty years before. The local marine life center received interpretive models of the river and its flows, to be used for public education (Dickerson, 2010b). Two Republicans with their sights on Dicks’ seat criticized the removal and the science behind it (Gottlieb, 2010a), but a secure Dicks comfortably won re-election in 2010 nonetheless. The removal advocates, so close to success, lauded their togetherness and thanked each other for years of hard work (Callis, 2010). The contract to remove the dams was awarded to Barnard, Inc. at the end of the summer of 2010 (Gottlieb, 2010b). The dams’ crushed concrete was to go to paving roads, saving taxpayers an estimated \$1.5 million (Gottlieb, 2010c). At the end of the year, Park Service slogan for the restoration project was announced to be “Natural Wonders Never Cease” (Ollikainen,

2010b). In June 2011, the dams' generators shut down for the last time (Gottlieb, 2011c).

Dam Removal

On September 17, 2011, the removal of the Elwha Dam was inaugurated as the culmination of a weekend of festivities, which ranged from emotional poetry readings at the Elwha Klallam Heritage Center to a lewd but good-natured burlesque show at a Port Angeles bar. The removal ceremony, “a major interagency effort” (Hamilton, 2012), was attended by many dignitaries from Elwha and Washington state politics. Bill Bradley, who had been instrumental in getting the Elwha Act through Congress almost twenty years before, gave a speech, saying, “In this time, it is time for beautiful fish to restore the circle of energy and nutrients, prompt the rich life of the sea to flow up into the mountains, and the mountains, enriched again, to move stone by stone, grain by grain, down to the sea. It is time for the river to return to life” (Bradley, 2011). To Frances Charles, chair of the LEKT, the restoration was an answer to the tribe's many decades of prayers and weeping (D. U. de la Paz, 2011).

There had been hopes that President Obama would make an appearance at the ceremony after he famously joked about salmon governance in his 2011 state of the union address (Gottlieb, 2011b), but he did not. Interior Secretary Ken Salazar represented the administration. The weekend of celebration was overwhelmingly cheerful, and observers would have found little evidence that there had been much

controversy, other than some speakers' oblique references to long struggles and perseverance. Some see signs of a transition wherein nearly everyone now accepts and embraces the dam removal (Mentor, 2013; Bogaard, 2012; Hawkins-Hoffman, 2012; Winter, 2011). The Elwhas now sell Elwha dam-based merchandise (Lower Elwha Klallam Tribe, 2014a).

The final approach for the actual dam removal was essentially concurrent removal, with the Elwha Dam to come out first, followed two years later by the Glines Canyon Dam. The dam removal is essentially a series of carefully-directed demolitions intended to lower the lakes and release the silt on a schedule that left “fish windows,” times when returning salmon and trout could return to spawn without too much impact on the river (Ward et al., 2008). Elwha Dam was completely removed by March 2012. The Glines Canyon deconstruction continues, with the world watching on webcams as the dams come down, the lakes turn to rivers, and the deltas evolved (Erdman Video Systems & USDOJ NPS, 2014). Runs of salmon and steelhead rapidly recolonized the middle river and its tributaries (McMillan et al., 2012).

Some controversy remains over the use of hatchery or wild fish going forward in the restoration project – there is a 5-year moratorium on fishing in the Elwha, but the tribe, wanting to catch the fish to which it is entitled by treaty while wild populations recover, is raising steelhead and Coho in its hatchery. Some environmental groups hope for restoration using only wild fish. The removal of Glines Canyon Dam, a

much larger and sturdier structure, is scheduled to be complete by September 2014, 101 years after the first dam rose in the Elwha.

Conclusions

“Interior is deliberately destroying industrial civilization.”
Melanie Caltrider (in USDOJ NPS, 1995)

Politically Elwha is unique – there is no other river or restoration situation similar to it, but politically, ecologically, and hydrologically it is addressing a lot of the questions that weighed on stakeholders in the late 1980s and early 1990s. Part of this is due to its relative simplicity – there was one customer for the power and few other functions for the dam, but the primary difference between the Elwha and every other river restoration project in the contiguous United States is the purity of the watershed – there are almost no impacts on the Elwha above the dam sites (Brian Winter in Kelly, 1997). This means that conditions should be ideal for returning fish once the barriers are down. The river is on the north-facing slope of the Olympic Mountains, meaning that it should be relatively robust against climate change (Crain, 2012). The Elwha is often connected with the Snake dams, in fear or in hope (Bogaard, 2012; Gorton, 2011; Chastain, 2011), but its contributions to that issue are broad and indirect – the two situations are very different kettles of fish.

Egan (2007) identifies three time periods that shaped the progress of the Elwha removal question: FERC relicensing, the Elwha Act, and the creation of an action

plan for dam removal. I find it more useful to view the process as a series of hurdles removal advocates needed to clear – the passage of the Act, the defeat of REAL and its allies, and the acquisition of sufficient funding to purchase and remove the dam. Each of these processes depended upon working with other advocates’ political frames and values to enlarge the pro-removal coalition and diminish the power of anti-removal actors, and each of them was crucial to the eventual dam removal. Over time, dam removal went from an extremist proposal – and in the 1980s, it was indeed extreme – to a mainstream idea.

In 1986, the tribes (represented by the PNPTC and the LEKT) and the four original CIs were essentially alone in the field of political battle against the company, with relevant agencies and politicians expressing varying amounts of sympathy for one side or the other. As the issue moved beyond the routine FERC relicensing process, politicians from Slade Gorton to Bruce Babbitt became increasingly important, and resource agencies declared themselves in favor of removal. While the conservation coalition swelled dramatically as it brought over agencies, politicians, and companies, its goals and purpose remained quite stable. Later on, of course, the emergence of REAL and the CAG changed the debate a great deal. But these were essentially the only important additions to the advocacy coalitions after the 1980s. The removal coalition attracted allies, from fishing interests like NSIA and the Pacific Fishery Management Council (L. Harris, 1992d; USDOJ NPS, 1995b) to recreation interest like American Whitewater (O’Keefe, 2011) and the Surfrider Foundation (Casey,

2007). Removal opponents found support in granges, rural electric cooperatives, and realtors' organizations (American Public Power Institute et al., 1992; Camara, 1995; Rudolph, 1996). These newer groups added to the coalitions but did not change their political direction, and with the exception of REAL, the suite of stakeholders remained quite stable, shifting sides as with changing events, for 25 years.

As the issue changed from whether to relicense the dams to how to remove them and the companies found themselves on the same side as the tribe, the environmentalists, and the resource agencies, each group's core values remained the same, but now they aligned in favor of federal acquisition of the dam. This shifting dynamic demanded some careful political work – the Association of Western Pulp and Paper Workers had tried to intervene in favor of license renewal in 1987, and then had supported the Elwha Act in 1992 (Baker, 2012). But when Shawn Cantrell sounded out the Pulp and Paper Union in 1994, its representative told him that the union was taking a low-profile approach to the issue: management now wanted the dams out, but his membership was in favor of keeping them (Cantrell, 1993a). With funding contingent on pacifying Slade Gorton and then on fighting for a large piece of the Park Service budget, it was necessary to build and maintain a mega-coalition with no serious dissenting voices.

The dam removal coalition was not a unified political juggernaut – the political role of resource agencies is very different from that of advocacy groups, and even more

different from that of a sovereign nation like the Lower Elwha Klallam Tribe, and each type of organization related differently to decision-makers in Washington, DC. As Katherine Ransel of American Rivers put it, “The idea of stakeholders holding hands is a load of crap” (Lowry, 2003). Shawn Cantrell gets credit for holding the greens together (Finnerty, 2012), but within the CIs, there were differences of opinion: some in the environmental wing, confident in their position, would have let the question of FERC’s jurisdiction play out in the courts instead of having the government buy out the companies (Lowry, 2003). The various actors did work together over the course of the issue, beginning with the PNPTC helping Rick Rutz write the initial conservation intervention in the mid-1980s (Ralph, 2012) and ending with Dick Goin receiving a carved cedar fish from the Elwhas just as the removal commenced. More proactive agency personnel like Park Superintendent Finnerty and her Management Assistant Cat Hawkins-Hoffman also coordinated with the CIs (Hawkins-Hoffman, 2012). The CIs felt that their role was to push issues that the agencies were “unwilling or unable to make” (Wilson & Magraw, 1987). The tribe, between the fishery and the rickety lower dam just above the reservation, was able to use its treaty rights to put pressure on decision-makers, a power totally separate from that of agencies or private groups (Hawkins-Hoffman, 2012; Rutz, 2011; Elofson, 2011). There was some belief that if negotiations really fell apart, the tribe would have the matter in federal court immediately (Modaff, 2012). The agencies, of course, pursue goals within the scope of their missions and mandatory responsibilities, and have little chance to be creative or proactive in changing a political situation. At the

same time, the CIs could not do the necessary science or order anything to happen. The coalition members needed each other.

There were essentially two wings of the dam removal coalition – the JFWA, with their responsibility for science and management, and the CIs, with their political activism and creativity. In between, as Lori Bodi (2012) noted, was the tribe (including the PNPTC), which participated in both science and in political pressure (Baker, 2012; Bodi, 2012; Rossotto, 2012; Crain, 2012). Broadly, the CIs carried more of the political load leading up to the Elwha Act and then again in the formation of the CAG, and the agencies were responsible for setting the terms of restoration and then implementing the Elwha Act (Baker, 2012). The agencies were personified by Brian Winter, the scientist who led the implementation of the Elwha Act for most of the 1990s and 2000s – he had worked for the LEKT, then for NMFS, and then (and still, in 2014), for the National Park Service.

By 2011, the CIs had had a very limited role in the politics of the Elwha for over a decade – essentially public relations and urging Dicks to keep appropriations flowing (Masonis, 2012). This being the case, it was not surprising that the CIs felt a bit forgotten when the Elwha project was publicized as the work of the agencies and the tribe (Baker, 2012; Bogaard, 2012; Rutz, 2011; Mentor, 2013). There were very few representatives of the CIs honored on the weekend of the dam removal. Norm Dicks, though, did make sure to credit the conservation groups in his remarks at the time

(Dicks, 2011). The Elwha process is a good example of the old dictum that success has many fathers (Bracy, 2013; Ralph, 2012). Throughout the process, small political changes could have resulted in the end of the dam removal effort. The CIs, the tribe, and the agencies all played necessary roles.

As mentioned above, the Elwha question was inevitably a federal one – once the CIs and the Tribe made relicensing into an open controversy, the decision was going to be made in the courts or in the United States Congress – the anadromous fish, the tribe, and the National Park guaranteed this. But the progress of the Elwha question after 1994 demonstrated the power of local interests to halt progress and thereby dictate advantageous terms for themselves. The power dynamics of the Elwha confined the issue to two political venues – appropriations in the US Congress, and public opinion in the North Olympic Peninsula – with pressure applied at a key moment when removal advocates filed to determine FERC’s jurisdiction. Few other options were open. This frustrated anti-removal interests, who repeatedly tried to bring in the state of Washington. The anti-environmental American Right has long embraced states’ rights and state jurisdiction. But attempts to work in Olympia were stymied both by the lack of any state jurisdiction and by the fact that Washington is a liberal state, and Governor Booth Gardner, a Democrat, was an enthusiastic supporter of Elwha dam removal as the Elwha Act was being debated (Gardner, 1992). The WDF deal of the mid-1970s was the only way in which the state of Washington participated meaningfully in the Elwha decision, and that, of course, was in a very different

political situation. It is notable that when some local advocates called for state control of the situation, their rhetoric indicated an inaccurate grasp of the rights, roles, and responsibilities of state vs. federal agencies (Chastain, 2010; Mosiman, 1996a).

The difference in values held by these local advocates ran deeper than the issue of the dam removal. The anti-governmental voices that are to be found throughout rural America embraced the dam removal as yet another example of the plot by urban elites, big government and the “Virgin Earth Cult” to control their homes (Chastain, 1995a). Quite moderate North Olympic Peninsula locals are rankled by Seattleites equating the Olympic Peninsula with Olympic National Park (V. G. Egan, 2007). It must be said that much of the pro-removal coalition was centered in Seattle or Washington, DC, and that, as the *Peninsula Daily News* noted, much of the Seattle media favored dam removal (Editor, 1998). The dams joined goat management, wolf reintroduction, new land acquisition, the spotted owl, inholdings, and every other issue that had caused tension between the community and the park since the 1930s. The germs of the Sagebrush Rebellion and the Wise Use Movement²⁴ had always been present in the Olympic Peninsula, and out of this came REAL, which, with the help of Slade Gorton, succeeded in delaying dam removal for years despite having

²⁴ In 1994 the Wise Use Movement released an announcement urging dam removal as the wisest use of the resource, and saying that any other course of action would be illegal and a waste. This was not due to a change of heart in the foremost anti-environmental movement in America, but to the fact that the Wise Use movement had never claimed the name legally, so David Ortman of Friends of the Earth incorporated under the name and sometimes used it to release pro-environment statements (Ortman, 2012).

little connection to the dams and very few financial or human resources – the only raised a total of a few thousand dollars (Chastain, 2011).

Aside from these broader suspicions, the fact was that many people in the North Olympic Peninsula valued the dams and the power more than the natural river. As one sign above a Port Angeles highway read, “Remove the dams and eat your salmon in the dark” (Lowry, 2003). All stakeholders valued the fishery and enjoyed outdoor recreation; they simply saw the dams and the lakes as a better setting for these things. To some extent, the tension was cultural – resentment between the tribe and some local people had existed long before the Elwha Act, and the removal offered an opportunity for accusations about destructive gillnets and greedy natives, one the one hand, and about racism and sabotage, on the other (Eberhard, 2013; Elofson, 2011; Charles, 1994). It is difficult to gauge the role of racism in the issue, but there is no doubt that there are strong cultural tensions between the tribes and the Caucasians of the North Olympic Peninsula. The massive importance the tribe placed on the dam removal – the idea of bringing back their ancestral river and the prosperity it had supported, the memories of elders who had seen the giant fish runs – was something that few other advocates, even the tribe’s political allies, could fully understand. The tribe’s persistence, comparable to the fish waiting at the base of the lower dam (R. W. Busch, 2007), and its culturally distinct long-term sense of time, were crucial to maintaining the dam removal effort through to the end (Cantrell, 2011; Eberhard,

2013; Jensen, 2013; Weland, 2013). Whether the removal restores the salmon to the former levels the tribe expects will be seen in the decades to come.

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Interviews

Many interviewees changed organizations or played several roles during the dam removal process. The affiliation identified here is their most prominent as it related to the dam removal.

<u>Name</u>	<u>Affiliation</u>	<u>Date</u>
Baker, Jim	Friends of the Earth	3/4/12
Barson, Len	Conservation Interveners	3/27/12
Bodi, Lori	National Marine Fisheries Service	2/15/2
Bogaard, Joseph	Save Our Wild Salmon	2/2/12
Bracy, Terry	Daishowa America	4/1/13
Broman, Eric	Sierra Club	3/1/12
Campbell, Orville	Crown Zellerbach/James River	11/9/11
Cantrell, Shawn	Friends of the Earth	9/14/11
Chastain, Marv	Rescue Elwha Area Lakes	9/9/11
Crain, Pat	Lower Elwha Klallam Tribe	3/5/12
Dicks, Norm	US House of Representatives	10/7/13
Dyer, Polly	Olympic Park Associates	3/27/12
Eberhard, Eric	Senate Indian Affairs Committee	4/30/13
Elofson, Robert	Lower Elwha Klallam Tribe	11/9/11
Finnerty, Maureen	National Park Service	6/21/12
Garrity, Michael	American Rivers	9/8/11

Ging, Gwill	US Fish and Wildlife Service	12/6/12
Goin, Dick	Olympic Peninsula subsistence fisher	12/18/12
Gorton, Slade	US Senate	2/28/12
Gussman, John	Double Click Productions	3/3/12
Hamilton, Bob	US Bureau of Reclamation	2/21/12
Hanson, Kim	Naturebridge	5/7/12
Hawkins-Hoffman, Cat	National Park Service	12/18/12
Hewett, Pearl	Olympic National Park Inholder	11/10/11
Jensen, Tom	Senate Energy and Natural Resources Committee	4/25/13
Masonis, Robert	American Rivers	2/29/12
McNulty, Tim	Olympic Park Associates	11/29/12
Mentor, Joe	CAG Organizer	1/24/13
Modaff, Pete	Staff of Norm Dicks	6/22/12
Morris, Judith	Staff of Norm Dicks	3/2/12
O'Keefe, Tom	American Whitewater	9/13/11
Ortman, David	Friends of the Earth	12/7/12
Pess, George	National Marine Fisheries Service	3/1/12
Peters, Roger	US Fish and Wildlife Service	2/13/13
Phillips, Bart	Clallam County Economic Development Council	3/15/12
Ralph, Steve	Point No Point Treaty Council	12/13/12
Robinson, Bill	Trout Unlimited	2/6/12
Rosotto, Michael	Friends of the Earth	11/8/12

Rutz, Rick	Conservation Interveners	11/8/11
Swift, Al	US House of Representatives	6/20/12
Weland, Mike	Staff of Brock Adams	5/6/13
Wiggins, Glenn	CAG Member	3/3/12
Winter, Brian	National Park Service	11/10/11
Wunderlich, Bob	US Fish and Wildlife Service	4/3/12

Chapter 5: Savage Rapids Dam

Introduction

Savage Rapids Dam (SRD), the largest irrigation dam to be removed on the West Coast, was condemned three different times. The Grants Pass Irrigation District (GPID) agreed to remove their dam in 1994, 1997, and 2001, but the structure wasn't breached until 2009, after years of strife and uncertainty. Rogue River stakeholders, challenged by regional and political changes, had fundamentally opposed understandings of rivers and dams, and framed the problem, the responsibility, and the solution in different ways – some were interested in the fish, some in the river, some in the community, and some in the dam itself. The river had formerly sustained large salmon (*Oncorhynchus* spp.) runs and then been utilized for irrigated agriculture. The environmental history of Southern Oregon, fraught with conflict and instability, created fertile conditions for a volatile political struggle. These conditions demanded advocates who could be creative and adaptable while leveraging the situation to further their goals. The complex layers of policies governing salmon and water offered stakeholders a wide array of venues in which to pursue their struggles, and opportunities to ally with other actors.

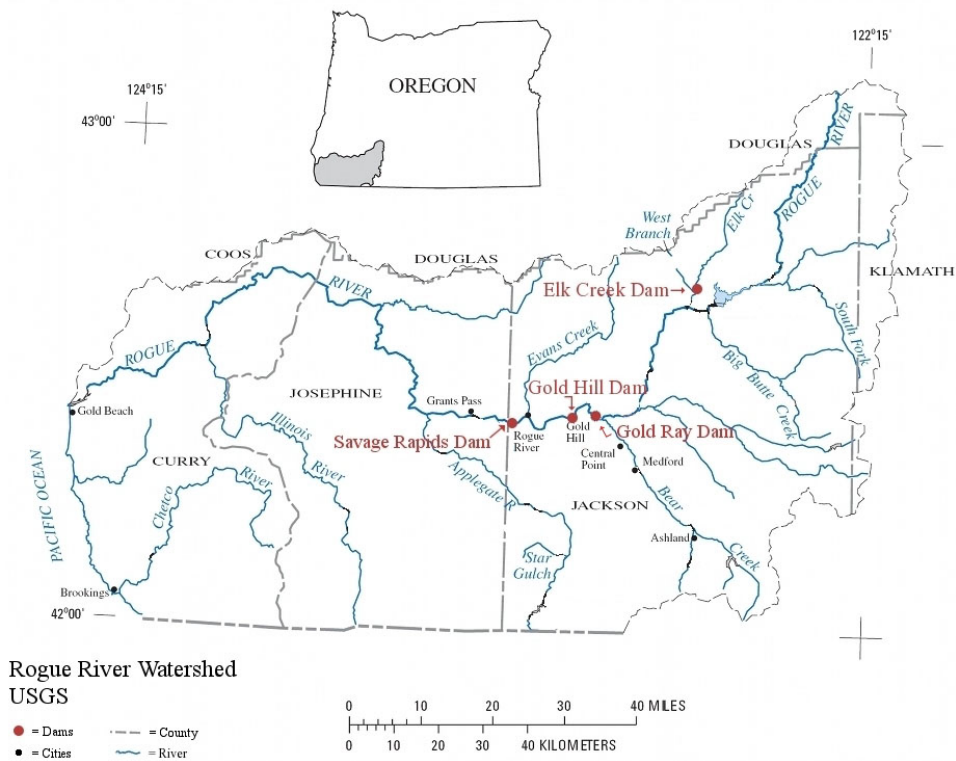


Figure 5-1. Rogue River Watershed. Other dams were removed 2008-11. (Map courtesy Waterwatch of Oregon)

History

The Rogue is the one of the largest rivers in Oregon, flowing 215 miles from Crater Lake National Park in the Cascade Mountains west to the Pacific Ocean, just north of the California border. Its watershed covers 5000 square miles of southwestern Oregon. One of the original eight rivers to gain Wild and Scenic status in 1968, the Rogue's upper and lower reaches are largely undeveloped. The middle of the watershed, including the larger communities of Grants Pass, Medford, and Ashland,

contains most of the people in the Rogue Valley. The Rogue also hosts the state's largest population of wild anadromous salmonids (USDOI BOR, 1995).²⁵

Savage Rapids Dam was the lowest dam in the Rogue River. Built on the border between Josephine and Jackson Counties (Figure 5-1), it was 39 feet tall when raised for the summer irrigation season. The dam belonged to the Grants Pass Irrigation District. Its sole purpose was to supply water to district patrons in and around the town of Grants Pass, though the impoundment was used seasonally for flat-water recreation – the dam site is close to downtown Grants Pass – and occasionally as a convenient water source to fight forest fires (USDOI BOR, 1995).

GPID formed in 1916 to irrigate 18,000 acres of southern Oregon. The district built Savage Rapids Dam in 1921 to divert water into its canal system. The Rogue Valley was thirsty for water. An editorial entitled “Water Everywhere” compared the people of the valley to Coleridge’s Ancient Mariner, bemoaning the fact that the Rogue ran, useless, to the sea (“Water Everywhere,” 1920). The construction of the dam was greeted with great fanfare; the *Grants Pass Daily Courier* published many articles boosting the irrigation project, and covered the dam’s construction avidly (“Arranging for Celebration,” 1921, “Complete Power House Walls,” 1921; Editor, 1920). A crowd of 3,000 turned out to watch the dedication ceremony (Momsen, 2010), and in 1922, the Irrigation District printed Christmas cards featuring their new

²⁵ The enormous Columbia River has more, of course, but Oregon shares the Columbia with Washington.

dam (Momsen, 2009). In 1929 the state of Oregon awarded GPID a water right of 230 cubic feet per second (cfs), an allotment of 1/80 cfs per acre.

The dam hurt the Rogue's salmon and steelhead trout. As soon as SRD went into production, it diverted juvenile salmon into irrigation canals, from which they spilled them onto the land – one farmer scooped hundreds of salmon fry out of his field (Strahan, 2012; Arman & Woolridge, 1982; Barnard, 1998). The dam's turbines turned young fish migrating downstream into “fish salad” (Gove, 1998), and its fish ladder delayed adults' migration (Van Dyke, 2012; USDOJ BOR, 1995). In 1934 a new fish ladder was built on the south side of the dam, but a 1941 investigation from the Oregon Game Commission still found 14-38% mortality (USDOJ BOR, 1995). By 1949, the cost of fish passage was onerous enough that GPID asked the Bureau of Reclamation (BOR) to help repair the dam, incurring a debt that it would carry into the 2000s (Benik, Hamilton, & Redding, 2010; USDOJ BOR, 1995). In the 1970s, BOR put together a report on renovation for fish passage, but there were no acceptable bids to upgrade the dam, so the issue was dropped – there was some expectation that future hydro development and the demands of a FERC license would take care of fish passage without costing the government anything, but this never happened (Hamilton, 2011). Major repairs and fish passage issues continued through the twentieth century. In 1982, for example, 1,500 adult steelhead (*Oncorhynchus mykiss*) were trapped due to faulty passage, prompting a rescue operation by GPID and the Oregon Department of Fish and Wildlife (ODFW) (Henderson, 1982). The

dam also heated the river downstream, releasing warmer water from the reservoir downstream and increasing stress on salmon (Martin, 2012).

By the mid 1960s, ODFW biologists rated Savage Rapids Dam the biggest fish passage problem on the Rogue – the only worse problem in the basin was low water levels (Fattig, 1980; USDOJ BOR, 1995). The label of “fish killer” would stick to the dam for the rest of its existence (Tehan, 2013; Hunter, 2011; Strahan, 2001)

There had always been conflicts between fish and dams on the Rogue. As early as 1910, a group called the Rogue River Fish Protection Association formed to help protect the Rogue fishery (Dodds, 2011). In 1916, fishermen were suspected of blowing up the old Ament Dam to restore fish passage (Hunter, 2011; Momsen, 2009). Historically, the river had hosted immense runs of salmon and steelhead trout, enough to sustain a cannery near the mouth and a sport-fishing industry upstream (Dodds, 2011). In the 1930s, fishing on the Rogue was good enough to attract famous anglers like movie star Clark Gable and Western novelist Zane Grey, who presumably could have fished anywhere they wanted (Rogue Web, 2014). Zane Grey had a cabin on the Rogue and set one of his more famous novels there: *Rogue River Feud*.

In the 20th century the Rogue’s fish populations plummeted, like many throughout the Pacific Northwest. Commercial fishing ended in 1935 (Dodds, 2011). Zane Grey,

disgusted, moved north to better fishing on the Umpqua River (Norcross, 2013). Development in the watershed and salmon survival in the ocean undoubtedly played a role in the fishery's decline, but so did dams, and stakeholders reasoned that they could feasibly improve freshwater habitat and help the fish. In the 1970s the Cole Rivers hatchery and Lost Creek Reservoir were built upstream, and the Rogue's salmon runs artificially augmented with hatchery stock. This meant a rise in fish abundance, but at some ecological cost – hatchery fish have lower fitness in natural environments (Araki, Berejikian, Ford, & Blouin, 2008). The issue of hatchery vs. wild stocks remained (and remains) controversial throughout the region (Bakke, 2012). Fishing groups worked with GPID to restore fish passage and habitat – for example, the Rogue Flyfishers and the local chapter of Northwest Steelheaders pitched in to help rebuild SRD's fish ladders in the 1980s – but such efforts did not come close to solving the dam's fish passage problems (Duwel, 1986).

All the while, GPID was changing. In the 1930s its service area was cut to 12,600 acres in acknowledgement that roughly 6,000 high-elevation acres were not feasible to irrigate (USDOI BOR, 1995). In the late 1970s, GPID used much less than its allotted 230 cfs, but the district felt that it needed the extra water to account for seepage in the canals and to push water out to the system's extremities (Figure 5-2) (GPID, 1978, 1979b, 1981a). The GPID board discussed the possibility of a legislative solution to keep their larger water right, but this did not come to much (GPID, 1978, 1979a). In 1921 the Rogue Valley was an agricultural area, but over

time GPID's patrons became more and more urban and suburban in character. The Grants Pass town slogan is "It's the Climate²⁶," and the dry, temperate conditions that had caused farmers to need an irrigation system began to lure retirees to southern Oregon (Shepard, 2011, McMurray, 2011; USDOJ BOR, 1995). This is a growing trend in the rural west (Nelson, 2005). By the 1980s very few patrons were farmers (Shepard, 2011). GPID patrons subdivided their land and sold it to retirees; in 2012, the Irrigation District's average parcel size was about one acre (Shepard, 2012). Many patrons did not receive irrigation district water – GPID was not responsible for getting water up to its patrons' lawns (Smith, 2011). In this sense, the district was sometimes compared to a school district, where residents' taxes support the school whether they have children there or not (Dewel, 2000h; GPID, 1999c). As early as 1980, GPID board chair Paul Brandon told Oregon Water Resources Department (OWRD) Administrator Larry Jebousek that the board believed GPID was no longer "a viable irrigation district" and discussed converting it into some other more appropriate body for the new Grants Pass (Brandon, 1980). The dam was already ageing – despite continual efforts to maintain it, removal was discussed as early as 1975 (Raush, 1975). And it was already political – the fishing groups that helped with upgrades protested changes that might hurt the fish, including the suggested installation of hydroelectricity in the mid-1980s (Huntington, 1986).

²⁶ The slogan is still proudly displayed on a large arch over a busy downtown street.

All of this set up a policy paradox: the Rogue River was two different things at once (Stone, 2002). To some it was a wild river that provided fish and to others it was a reservoir that provided irrigation water. It was other things too, of course, like recreation and scenery, but these other Rogue River goods did not conflict as directly as fish and irrigation diversions. As fish runs dwindled, farms became subdivisions, the environmental movement rose, and Savage Rapids Dam aged, contrary demands and ideologies collided.

Savage Rapids on the Agenda

In the late 1970s, OWRD began to perfect GPID's water right: GPID was required to prove that its water went to beneficial use. OWRD is supposed to perform this service for each water right soon after the right is issued, but this inspection was late. The state's survey revealed that GPID only irrigated about 7,755 acres. Oregon still calculated irrigation water at 1/80 cfs/acre, so OWRD's 1982 final proof survey reduced GPID's water right to 96.94 cfs (David J Newton Associates, 1994).

The district had been concerned about this possibility throughout the OWRD proof process. In the early 1980s, GPID worked out a deal with ODFW wherein the department would apply for 83 cfs, to be delivered through GPID's canals. The 83 cfs would augment wildlife habitat in and around the canals, connecting streams and recharging groundwater for ODFW. Along the way, it would provide the necessary boost for GPID's actual irrigation water (GPID, 1980). With this deal in place, the

board withdrew an application to OWRD for further water appropriations (GPID, 1981b). It is noteworthy that at this point, before Savage Rapids became a source of significant conflict, a resource agency made common cause with the irrigation district to help them maintain the status quo – though ODFW did raise removal as one of the options for the dam as early as 1985 (Hanh, 1986).



Figure 5- 2. Grants Pass Irrigation District (Grants Pass Irrigation District, 2014). Each numbered division is represented on the GPID board.

The deal with ODFW raised one of the thorniest issues of the entire process: that GPID’s leaky canals meant a greener Rogue Valley. While most of the people in Grants Pass were not GPID irrigators, they benefitted passively by living in the verdant surroundings fed through the canals. This meant that many people saw Savage Rapids (and dams in general) as a creator and guarantor of beauty and civilization, making the otherwise arid Rogue Valley into a green paradise, even a Garden of Eden (Ledbetter, 1997; USDOJ BOR, 1995). A frequently-repeated story was that local Indians called the region something like the “brown desert” (Duwel,

2000a; LaBounty, 1994c; Long, 1998x) or “The Land of Little Brown Sticks” (McMurray, 2011), but that the land had been redeemed by SRD. There is no evidence for any such appellation among the Rogue’s native tribes, but the popular perception that the dams and the irrigation district kept the Rogue Valley green made a powerful and enduring policy image. Grants Pass is indeed very dry for western Oregon (David J Newton Associates, 1994). Later on, at the height of the controversy, some advocates suggested that a return to some sort of high desert landscape would indict and shame dam removal advocates into admitting that they were wrong after all (GPID, 1997g). It was inconceivable to them that anyone would prefer the high desert.

The water right partnership with ODFW ran until 1985, when ODFW said that it could only prove beneficial use of about 20 cfs, and this only in particular streams (GPID, 1985). After two more years of discussion, ODFW director Randy Fisher stated that it was “important for us to keep in mind that DFW attempted to assist GPID in finding a solution to a very difficult problem (in the 1980 agreement)...DFW can legitimately appropriate only 20.5 cfs. I hope that we can put the 1980 agreement behind us...” (GPID, 1987a). This left GPID and its water right back where it had begun. GPID applied to the state for a supplemental 90 cfs in 1987 (GPID, 1987b).

What to Do?

In 1988, the Bureau of Reclamation began the Josephine County Water Management Improvement Study (JCWMIS), which included improving fish passage at Savage Rapids (USDOI BOR, 1995). Embracing the chance to solve (or at least delay) its problems, GPID joined the project in 1988 (GPID, 1988). The effort soon focused primarily on GPID, as Josephine County lost the funding that allowed it to take part in the study (USDOI BOR, 1995). In 1990 the state of Oregon granted GPID a temporary supplemental water right to divert at historic levels on the condition that it continue the water management study, with the goals of implementing conservation measures to lower consumption and fixing fish passage. The state sometimes makes fish passage or other natural resource improvements in the public interest a condition of water rights (GPID, 1997f). This provoked some grumbling – there are those who argue that such actions should not be part of water right conditions (Cauble, 2011) – but the study went ahead and the supplemental water right’s terms were fulfilled (GPID, 1990, 1991d). To fund these efforts, GPID charged patrons an extra \$25 (GPID, 1990).

The decision over GPID’s water right gave environmental and fishing groups the opportunity to take a more active role in the fate of the dam and the fish – to save fish through the doctrine of beneficial use, as Whitworth (2001) notes. This strategy is a political and legal anomaly – there are few political structures through which outside

stakeholders can cause the removal of old diversion dams.²⁷ The state of Oregon may deny or alter water right applications for being against the public interest, but environmental groups did not expect it to do so unless pressured by private interests who might sue to enforce water laws (Sherwood, 2012; Adams, 2011; Hunter, 2011; Pagel, 2011). In an overworked bureaucracy, enforcement is often “complaint-driven” and the threat of lawsuits was potent in pushing agency action throughout (Reeves, 2012). In early 1989, Waterwatch of Oregon (a group dedicated to maintaining and restoring natural flows in the state’s rivers), Rogue Flyfishers, and the American Fisheries Society met with OWRD to discuss their thoughts on appropriate permit conditions (GPID, 1989a). They made it clear that they were prepared to go to court, if necessary, to enforce OWRD’s decision to reduce GPID’s water right (Hunter, 2014). As noted above, fishing groups had long taken an interest in the dam’s operations, and GPID had welcomed their involvement, but helping to fix a fish ladder and reducing a water right are very different matters. The groups wanted fish passage and the water right offered them policy leverage with which to get it. These talks alarmed the district (GPID, 1989b).

ODFW was also becoming more proactive in attacking fish passage problems. Under the leadership of Chief of Fisheries Jim Martin, ODFW assembled a “hit list” of the most problematic dams in the state (Associated Press and The Daily Courier, 1991). Savage Rapids was on the list; it was estimated that its removal would boost the

²⁷ In contrast to hydroelectric dams, which are reassessed when their licenses are renewed.

Rogue's salmon and steelhead populations by 26,700 adult fish (Associated Press and The Daily Courier, 1991; USDOJ BOR, 1995). This rankled local people – they did not want the fate of their dam and river to be decided by anyone from outside of the area (“Supporters of dams hold vigil Saturday,” 1991). Martin was burned in effigy, a fact of which he remained proud in 2012 (Martin, 2012).

As the JCWMIS continued into the early 1990s, the situation was uneasy but relatively stable. The dam issue remained largely on local footing, as the lead voices for removal were either explicitly based in the Rogue Valley (Rogue Flyfishers, for instance) or were Oregon-specific bodies with strong presences in Jackson and Josephine Counties (Waterwatch). Groups like Curry Guides Association had had an interest in improving passage at Savage Rapids for many years (Curry is the county that includes the mouth of the Rogue) (Tienson, 2012). Their involvement echoed the long-ago fishermen who had fought against the Ament Dam. GPID worked on their water right with a group of local bodies, aside from the necessary agencies: local government, local environmental groups, and concerned citizens (GPID, 1991a). The environmental groups did receive some sympathetic advertisements from the outdoor gear company Patagonia, which is active in environmental issues (Gordon Gregory, 1993a). Patagonia's involvement sparked some resentment in Grants Pass, as people didn't see what place a faraway sporting goods company had to influence events on the Rogue (Kirtley, 2011; GPID, 1993; Lucas, 1993).

Bob Hunter, a lawyer, boater, and fisherman from nearby Medford, represented Waterwatch. While an array of people involved themselves in Savage Rapids – Tom Simmons, also of Waterwatch, gets credit as an early leader (Beyerlin, 2012; Hunter, 2011) – Hunter was their widely-acknowledged leader, speaking for all the private stakeholders that wanted to see the dam removed (Beyerlin, 2012; Curtis, 2012; Raabe, 2012; Strahan, 2012). Throughout the process, Hunter remained a central figure in the Savage Rapids debate.

Save the Dam

GPID wanted to keep its dam. As early as 1991, dam supporters were holding candlelight vigils for SRD (“Supporters of dams hold vigil Saturday,” 1991). Dam savers organized into grassroots nonprofit groups with names like the Save Savage Rapids Dam Committee and the Three Rivers Watershed Council, held a series of public rallies and meetings in area granges (Gordon Gregory, 1994b), catalyzed local opinion, and took Savage Rapids Dam from a relatively private issue to a matter of public debate (Lucas, 1993). Some of the protesters were small entrepreneurs whose recreation businesses relied upon the traffic at Savage Rapids Lake; others were lakeside property owners worried about what would happen to their wells or property values when the lake disappeared (“Dam backers will meet Wednesday,” 1993; GPID, 1993f; Gordon Gregory, 1994c; Lucas, 1993). Some lakeside landowners had built boat landings, which would be useless with no lake (Kirtley, 2011). Some in GPID suggested filing suit against OWRD, or filing an injunction against their

opposition, but there was no legally defensible reason to do this (GPID, 1992b, 1993a). By the same token, there was no way that the people who had enjoyed the dam's ancillary benefits of groundwater recharge and recreation could put a legal claim on them – it wasn't their water, and they did not have the right to or responsibility for it.

The most aggressive of the small pro-dam groups was the Association to Save Savage Rapids Dam and Lake (ASS). Led by fiery local Republican John DeZell, ASS filed a SLAPP (Strategic Lawsuit Against Public Participation) against a long list of opponents, from Secretary of the Interior Bruce Babbitt to local environmentalist Andy Kerr (Bender, 1997). The case was swiftly thrown out (Kerr, 2012). The ideological slant of the suit is well expressed by legal analyst Phillip Berry: "ASS's SLAPP 'may represent the high water mark of SLAPP litigation, being based, apparently, upon the theory that anyone who even speaks, however abstractly, about removing a dam . . . for whatever reason is subject to suit for alleged conspiracy'"(in Bender, 1997). The stated intention of the suit – to stop environmentalists from speaking – was clearly frivolous (Staff, 1994). SLAPPs can be lengthy and expensive, though (Canan, 1989), and environmentalists took this suit as an attempt to harass and silence them (Staff, 1994). The SLAPP was necessitated by the fact that ASS had very little direct power – they could lobby the board, or indeed anyone else, but they could not find any tool to create actual change.

Savage Rapids Dam saw a political role reversal between environmental and traditional land use groups. In many past cases, environmentalists have been small, poorly-funded upstarts protecting landscapes – forests, deserts, seashores – from the depredations of powerful outside interests. Dam savers mentioned, over and over, how much money environmental interests had and how difficult it was to compete with their resources (Adams, 2011; Greenwood, 2011; Kirtley, 2011; McMurray, 2011; Spickler, 2011). Restoration necessarily flips the traditional land use dynamic by putting environmentalists on the offensive, trying to alter, rather than protect, the status quo. In Savage Rapids the conservative resistance went beyond this and consciously took on many of the political trappings of environmental groups. The leader of one micro-scale pressure group, the Save Savage Rapids Dam Committee, promised to turn environmentalists’ tactics on them and snare these “masters of deceit” and “parasites” in court – rhetoric reminiscent of environmental firebrand Edward Abbey (Lucas, 1993). The Three Rivers Watershed Council’s name sounds like an environmental stewardship group, not an organization dedicated to fighting dam removal. There were even suggestions, later on, that dam savers would chain themselves to the structure, defying the backhoes, much as some environmentalists sit in trees to prevent them being felled (GPID, 1999b; Gordon Gregory, 1994b).

Deciding Dam Removal

The JCWMIS was split into a water conservation study, performed by David J. Newton Associates, and a study on fish passage, performed by BOR. A progress

report on fish passage was published in 1992 and the Planning Report/Draft Environmental Impact Statement (EIS) was released to the public in 1994. These documents indicated that refurbishing the dam to allow adequate fish passage would cost an estimated \$15 million, and that dam removal and the installation of pumps, BOR's preferred alternative, would cost \$10 million ("Dam backers will meet Wednesday," 1993; USDOJ BOR, 1995). The EIS projected a 22% increase in fish escapement above the dam site after removal (USDOJ BOR, 1995).

If GPID took out the dam, OWRD would allow it to have extra water in return. Some environmental groups indicated that they would be very open to helping GPID gather the funds to pay for dam removal, and let the district keep its water (GPID, 1993d, 1994c; Gordon Gregory, 1994d). Bob Hunter was willing to working with GPID in such a way as to preserve the irrigation district (Hunter, 2011; Shepard, 2011). To other environmentalists, though, the survival of GPID was not important (Cauble, 2011; Moore, 2011; Shepard, 2011). Andy Kerr of the Oregon Natural Resource Council suggested simply expanding the town's water system and doing away with the irrigation district entirely (Gordon Gregory, 1994d). At the same time, as GPID's lawyer Chris Cauble (2011) noted, the disappearance of GPID would leave less impetus to remove the dam – the removal would still be expensive, but there would be little legal responsibility for it from anyone. Mike Jewett of the Oregon Water Resources Commission impressed upon GPID the necessity of having environmentalist support if they wanted to seek federal funding (GPID, 1993d).

Late in 1993, with the study winding down, the GPID board had to face some hard parameters for the Savage Rapids question. To continue irrigating, they needed water. They were using more water than their acreage allowed. Even if the state allowed them the extra water they hoped for, that decision would be targeted by an environmentalist lawsuit with a high likelihood of success. If they did somehow manage to keep the dam, it would be much more expensive, and in the environmental climate of the early 1990s they would be hard pressed to get external funding for the necessary upgrades in BOR's dam retention alternative (GPID, 1993f; USDOJ BOR, 1995). For people who wanted to keep the dam, there were no good choices.

A survey of GPID patrons, reported by board member Bill Hiljus in late 1993, indicated that only 28% of respondents were willing to pay to save the dam; 34% wanted to save it but specifically declined the option of paying for it (GPID, 1993d). A variety of local advocates took up the cause of dam retention but were frustrated in their attempts to find the \$15-17 million that was by then estimated as the cost of fixing fish passage ("Dam backers will meet Wednesday," 1993; Gordon Gregory, 1994c; USDOJ BOR, 1995). The *Grants Pass Daily Courier's* headline summed up the situation nicely: "Dam fans scratch heads, raise fists" (Gordon Gregory, 1994b).

Seeing no way around the state's demands and needing to keep their water, the GPID Board voted regretfully to remove the dam in January 1994 (GPID, 1994c). But the vote came with a list of conditions:

- A permanent water right of 149 cfs with sufficient in-stream flow to provide it.
- Outside funding for pumps, power, restoration, and a park above the dam.
- Agency and environmentalist guarantees of support and non-interference.
- Debt forgiveness from BOR work in the 1950s.
- The right to change its mind if funds for fish passage came up from the community

(GPID, 1994d)

In October, the OWRC extended GPID's permit to 1999 under the condition that they implement a water conservation plan and fix fish passage by removing the dam (USDOI BOR, 1995). Senate Appropriations Committee Chair Mark Hatfield (R-OR) stood ready to gather funding for the project if stakeholders could reach a consensus on replacing the dam with pumps (Beyerlin, 2012; Hunter, 2011; Pagel, 2011; GPID, 1993b). As noted above, BOR's Pumping Alternative opened fish passage and was much cheaper for the District (\$11.2 million to \$17.6 million). It also created greater fishing and whitewater recreation opportunities: a potentially significant economic boost for the local community (USDOI BOR, 1995). But the local community hated it.

Why?

The Grants Pass community's antipathy toward dam removal had deep roots that went beyond issues of fish or irrigation. In the late 1980s and early 1990s, dams were a minor environmental issue in the Pacific Northwest compared to the political *Götterdämmerung* of the Spotted Owl. The story of the Owl Wars needs no retelling here, but the tensions and distrust they caused and exacerbated between communities, environmentalists, and government agencies, the battle lines they drew, and most importantly the political mindsets they created and entrenched, remained violently alive when dam removal came to the fore years later. In 2011 and 2012, many stakeholders from the Savage Rapids debate spoke of the Spotted Owl as a touchstone in their political careers and consciousness (Kerr, 2012; Adams, 2011; Cauble, 2011; Hamilton, 2011; Moore, 2011). In 1991 Oregon Governor Barbara Roberts, replying to GPID secretary Bruce Buckmaster's concerns about federal listings of Columbia River fish, assured him that "like you, we do not want this to become another 'Spotted Owl'" (Roberts, 1991). So doubts and suspicions came pre-formed, and when the issue politicized, the fish replaced the owl as a symbol of all government meddling. The ghost of the Spotted Owl would continue to haunt negotiations over Savage Rapids for years to come.

Further complicating matters was the mercurial history of upstream Elk Creek Dam, a structure started in 1982, as Reisner's "Age of Dams" was coming to an end (Hunter,

2011; Lavigne, 2005; Reisner, 1993). Environmentalists fought against Elk Creek Dam through the 1980s. In 1987 they succeeded in getting an injunction that halted construction partway (Kagan, 2009), much to the chagrin of many Rogue Valley residents. Stakeholders on both sides of the issue lumped the survival of Savage Rapids and the completion of Elk Creek together throughout the process (Hunter, 2011; “Granges gear for dam fight,” 1993, “Supporters of dams hold vigil Saturday,” 1991; Greogry, 1994). Elk Creek Dam was never completed; eventually it was notched to open fish passage in 2008 and then abandoned.

The citizens of Grants Pass were far more exercised over the fate of Savage Rapids Lake than they were over the fate of the dam. Only irrigators would be materially affected by the dam removal, and their water was assured in BOR’s Pumping Alternative, but the seasonal “lake” would be impossible to replace. This issue was raised within the GPID board when the fate of the dam was debated. In a letter to their fellow board members, Catherine Davis and Bill Hiljus said,

“The dam has been a fixture in this community for many, many years and thousands of people have fond memories of family picnics on the summer lake, or learning to water-ski there, and of watching fish jump the ladders. Many people had also built boat docks on the lake, and enjoy the still water view during the irrigation season. These are the images that tug at our hearts.”

They went on in the rest of the letter to urge their colleagues to look beyond nostalgia at the facts laid out in BOR’s study, and reminded them that GPID did not exist to provide recreation (GPID, 1994c). But to the candlelight protesters, recreation was

exactly what GPID provided. Local politician Royal DeLand was among those suggesting that dam supporters organize into a recreation district and buy the structure themselves, although whether they had the resources to do this is very doubtful. To some extent this discontent was symptomatic of a larger rejection of the government; As seen by DeLand, “These people are just sick and tired of the government telling them what color toilet paper to use and when to use it” (GPID, 1993f; Gordon Gregory, 1994b).

In 1994, Don Greenwood, formerly a member of the GPID board, resigned after the removal vote, joined the anti-removal Three Rivers Watershed Council, and circulated a save-the-dam petition through the community. He ultimately claimed to have collected some 13,000 signatures (Huntington, 1997). Greenwood also sought and received the support of *Sneak Preview* publisher Curtis Hayden, whose free newspapers reach some 90,000 Rogue Valley residents each month (Hayden, 2014; Hayden, 2012). Hayden condemned the dam removal plan and its proponents (Hayden, 1994, 1997). The GPID Board maintained only loose connections to outside pressure groups – individual board members wanted to keep the dam and hoped these groups succeeded, but after committing to dam removal, the board needed to remain publicly in favor to retain their supplemental water right (GPID, 1995a). But few could doubt that Grants Pass and Josephine County wanted to keep Savage Rapids Dam.

Pressed by anglers, environmentalists, and the state of Oregon, dam retention advocates groped about for new weapons as the public rhetoric heated up. The petition had little direct effect, and the protesters continued to find that they had no legal claim to the dam or the water. Some resorted to scaremongering. John DeZell suggested that the environmentalists were not interested so much in fish passage as in destroying private property rights and the capitalist system (Gordon Gregory, 1994c). The dam was called the first domino in an onslaught of restoration that would take out every dam in Oregon (Gordon Gregory, 1994e). GPID countered this in a full page advertisement in the *Grants Pass Daily Courier* which asserted that the district made the Rogue Valley green, that without irrigation canals it would be “a dry gulch,” and that GPID needed its water right to continue to keep those canals full. The price of their water right was fish passage, the cheapest fish passage came through dam removal, and they had agreed to removal only under stringent conditions (GPID, 1994d). GPID’s ad was accompanied by a guest opinion piece by board member Bill Hiljus laying out these points in more detail. Hiljus acknowledged the enjoyable recreation the lake had provided, but noted that the protesters had not produced any resources to change any of these points (Hiljus, 1994a). GPID’s ad was not effective; at a public hearing in early 1995, many commenters failed to understand that the Rogue Valley would stay just as green with pumps as with the dam, that the same water would flow down the same canals (USDOI BOR, 1995). The decline of GPID’s farming base did not alter the desire for a verdant landscape: as patron Esther Bristol said ““They’ say ‘Irrigation is not needed since farms have

ceased to exist. Don't 'they' know it is the same thirsty land, whether farms or many households?" (GPID, 1995e).

To some extent the conflict over SRD was generational. Simply put, the Greatest Generation loved dams (Lavigne, 2005). Many of the strongest voices in favor of Savage Rapids Dam were older people, known to GPID staff as "the W2 guys," or the "Two Jima crowd," who made their stands on principle without much reference to the specifics of Savage Rapids Dam (Shepard, 2012). For 96 year-old former GPID board member L.H. Kirtley, "I don't care where it is, to take out any dam...there's no reason in the world" (Kirtley, 2011). Carl Stein, who would later serve on the GPID Board, avowed that he was "not in favor of the removal of the dam under any circumstance" (GPID, 1999b). Core values, held by local leaders who had grown up in a far more rural Rogue Valley, were difficult to shift with promises of future salmon runs. The dam meant more to them than 150 cfs of diverted water.

Through 1994, dam retention advocates held rallies (LaBounty, 1994a) and collected more and more signatures on their petition. The Josephine County commissioners passed a resolution urging the salvation of the dam, listing recreation, verdant land, and water supply for fire among SRD's benefits (Huntington, 1994). Later in 1994, dam retention advocates attempted to recall what they saw as an insufficiently steadfast GPID Board (GPID, 1994a; Gordon Gregory, 1994g). Previous GPID board elections had been quiet affairs, with little voter interest or turnout and board

members essentially being appointed, or volunteering (Hunter, 2011; GPID, 1995b).

The recall effort failed, but the politicization of board selection was a sign of things to come.

Bill Hiljus, who had voted for dam removal with clear eyes and a heavy heart, wrote an op-ed for the *Daily Courier* in November 1994, asking who the dam savers would blame when the valley turned brown (as it surely would if GPID lost its water right, collapsed, and stopped operating the dam) and pointing out that the board had taken courageous, financially responsible steps, especially given that few patrons were willing to pay for the dam. He noted that the board and the district faced many kinds of pressure – the water right, future upkeep, and in the future, possible endangered fish. He urged support for the board and its decision (Hiljus, 1994b).

Hiljus' column might as well have been birdsong. Three days later, former board member and current leader of Three Rivers Watershed Council Don Greenwood wrote a counter-article, predicting that pumping alternative would result in more expense, patron buyouts, and the collapse of the district, ending with an arid Grants Pass landscape. He also cast doubt on the dam's impact on salmon. Greenwood claimed strong popular and political support (Greenwood, 1994). But as he later said himself, "Unless we can gather some kind of power to combat the power that the bureau [OWRD] has, they're going to get their way" (O'Loughlin, 1995a).

Turning to Salem

The sort of power Greenwood hoped for arrived in November 1994. The Gingrich Revolution rippled down to the Oregon legislature, where Grants Pass Republican Brady Adams was elected as president of the state Senate. Feeling that local people were being pushed around by outsiders – a view he shared with many in the Rogue Valley (Hayden, 2012) – Adams threw his support behind the dam (Adams, 2011). Adams had already been approached by some environmental representatives in 1993, but felt at the time that they were antagonistic, over-confident, and too removed from the Grants Pass community. He formed a dislike for them and their cause immediately (Adams, 2011). Adams was not the only person who felt that environmentalists were abrupt and peremptory in their approach to the community (Tappan 2011), but his good graces mattered more than almost anyone else's. A popular, influential local banker, Adams was an ideal figure to represent the dam retention coalition in the state capitol.

Joined by fellow Grants Pass Republican Rep. Bob Repine, Adams tried to create a legislative solution that would protect the people of Grants Pass (Repine, 2012). He pushed through bills guaranteeing GPID a water right of 150 cfs (SB 1005), and making dam removal subject to the approval of the legislature before being ordered by any state agency or local government (SB 1006). Adams also engineered Senate Joint Rule 12, forbidding agencies (like OWRC) from adopting any administrative rule without the legislature's consent, and sent a directive to the agencies forbidding

them from putting state money toward dam removal without legislative approval (Buck, 1995). This vigorous expansion of the issue into a state-level venue gave hope to pro-dam interests in Grants Pass, but it placed control in the hands of the Oregon government, most of which was not as sympathetic to GPID as Brady Adams.

GPID's sentiment was all for keeping the dam, but legally it still had to prove due diligence in pursuing dam removal in order to keep its supplemental water right – it was afraid to even study dam-saving ideas publically for fear of being out of diligence (O'Loughlin, 1995b). Board members who wished to speak out on the situation were advised to meet with GPID's lawyer to understand the parameters of what they were and were not allowed to say (GPID, 1995d). This tension was demonstrated in a pair of letters from GPID board chair Tom McMurray to Representative Wes Cooley (R-OR). The first letter, written February 16, 1995, noted the board's decision to remove the dam, and said that when GPID had a working group together to remove the dam they hoped for his support in securing federal funding. No one is carbon copied on the nine-line letter (GPID, 1995c). Five days later, McMurray wrote another letter to Congressman Cooley, this one two pages long, with copies going to Brady Adams, Bob Repine, and the GPID Board. Here McMurray admitted frankly that his previous letter was only sent to fulfill OWRD's due diligence clause, stated that the funding help they really wanted was to keep the dam, asserted that they had the support of the commissioners of Josephine and Jackson Counties, the city of Grants Pass, and the current GPID board, and hoped that GPID would get help from Salem in saving their

dam (GPID, 1995d). McMurray later claimed that the state “blackmailed” GPID into voting for dam removal (Associated Press, 1995).

The Task Force

In Salem the dam retention effort ran into Governor John Kitzhaber, a staunch environmentalist who displayed a “Take Out Savage Rapids Dam” bumper sticker on the wall of his office (Curtis, 2012; Buchal, 2011). Kitzhaber’s support for dam removal was a towering political wall for dam savers to try to surmount. Dam removal proponents advocated effectively in Salem, showing up in force to testify against Brady Adams’ bills: the only dam savers who testified were Tom McMurray and Adams himself (O’Loughlin, 1995c). Kitzhaber vetoed SB 1005, the bill giving GPID its water, and made it clear that SB 1006, putting dam removal decisions in the hands of the legislature, would not pass as written. This put the situation at an impasse. Law and economics were clearly on the side of dam removal, but with local sentiment dead against it, funding the removal would be impossible, as Kitzhaber’s administration acknowledged (O’Loughlin, 1995d). GPID could not realistically have paid for either removal or mitigation on its own. Kitzhaber decided that the matter needed more time, and he and Adams re-wrote SB 1006 to create a task force to study Savage Rapids Dam (Bender, 1997; O’Loughlin, 1995d). The Governor and the Senator appointed the task force’s members in December 1995. The force consisted of some local agency staff, and environmental and fishing representatives such as

Bob Hunter, and a large proportion of Grants Pass citizens, some of whom had previously been strong advocates of keeping the dam.

This was an effort to forge one coalition out of the many Savage Rapids stakeholders, in hopes that they would overcome value-based differences through discussion and mutual education, and produce a plan on which all could agree. This has been a relatively common strategy in western land issues (Pralle, 2006; Thomas, 2003; Walker, 2006). It has seen some durable successes, famously in northern California's Quincy Library Group, which works on forest issues (Pralle, 2006). More broadly, Kitzhaber was hoping that through efforts like this one, he might be able to restore Oregon's fish runs and get out ahead of federal listings and federal agencies mandating the management of Oregon fisheries (Solliday, 2011; O'Loughlin, 1996). At that time, the governor and the many interests involved with Oregon's salmon were planning what would become the Oregon plan for Salmon and Watersheds (State of Oregon, 2014). The Task Force, it was hoped, might lead to unified success. One coalition, one venue, one plan. This would circumvent and finish the Savage Rapids conflict – if the Task Force could reach a strong agreement.

The working of the governor's task force counted as due diligence to OWRD, so GPID was able to keep diverting water as in the past. The task force set to work under the chairmanship of Dennis Becklin, a local businessman, GPID patron, recreational fisherman, and associate of Brady Adams (O'Loughlin, 1995e). Becklin's son was a

river guide, which Adams expected would lead him to lean toward dam removal (Adams, 2011). As chair, Becklin emphasized the need to ensure that all task force members were educated on the issues (O'Loughlin, 1996a). The task force heard from professionals in many relevant fields, from ecology to engineering, but did not draw unified conclusions. Some members were dubious of estimates on how much damage SRD did to fish – the estimates, they pointed out, were based on data from other rivers (Long, 1996a). Members were deeply concerned about the possible release of contaminated sediment behind the dam, and while there was no indication that the SRD sediment was poisonous, this fear would continue to dog the removal well after the dam came out (Long, 1996b, 1997h; Peattie, 2011).

In October 1996, the task force announced its recommendation. It said that while the dam was indeed a problem for fish, it should be retained with the addition of rebuilt fish ladders, pumps to propel irrigation water instead of turbines, and other salmon safeguards (Long, 1996c; Savage Rapids Dam Task Force, 1996). However, the recommendation was messy and inconclusive. When the Task Force's findings were signed in December, Michael Evenson of ODFW and Al Cook of OWRD signed with the understanding that their agencies would not be obligated to provide resources to support this plan (Savage Rapids Dam Task Force, 1996). Costs also worried Gordon Anderson, the mayor of Grants Pass, and he signed with the statement that he was concerned about the expenditures of taxpayer dollars without (in his view) sufficient demonstration of need (Savage Rapids Dam Task Force, 1996). Emerson Roller of

Grants Pass and Lyle Woodcock of the Josephine County Farm Bureau refused to sign at all, believing that more study of fish mortality at the site was needed – they did not think that BOR’s estimates were convincing (Savage Rapids Dam Task Force, 1996). Bob Hunter, Bernie Moore of Rogue Flyfishers, and fisherman Dale Smith refused to sign for the opposite reason – they believed that the dam was a fish killer and had to be removed (Hunter, 2011; Moore, 2011). The Task Force’s recommendations were in no way legally binding, and Kitzhaber did not accept them (Kitzhaber, 1997).

The upshot was that the Task Force changed almost nothing, serving only to prolong the debate and inflame opinions on both sides – the police had to be called in to at least one GPID board meeting (GPID, 1996a, 1996b; Hayden, 1997), and another ended with the audience throwing folding chairs at one another (Webster, 2012). GPID tried to work through diverse visions of the dam’s future by bringing in the Rogue Valley Council of Governments (RVCOG) to facilitate discussion, fact-finding, and (potentially, eventually) funding. RVCOG is an apolitical group incorporating over twenty governmental or quasi-governmental organizations in the Rogue Valley. RVCOG met with GPID roughly once a month through 1997, but the attempt to build consensus and move toward a decision did not work in the volatile political climate. Brady Adams tried to push similar legislation later, but with no great likelihood of success (Adams, 1999). The dam savers had little chance of

winning with John Kitzhaber in Salem, but with Brady Adams in the Oregon legislature, the dam wasn't likely to come out as long as the status quo held.

The SONCC

While Kitzhaber's environmental values and the divided nature of the task force report may have played a role in his rejection of the Task Force recommendation, another external change disrupted the Savage Rapids process: the 1997 federal listing of the Southern Oregon Northern California Coho (SONCC) (*Oncorhynchus kisutch*) salmon as threatened. In June 1997, NMFS sent a letter to GPID, acquainting the district with this new situation and noting that they would need an incidental take permit to operate the dam (Long, 1997a). The listing would have come as no surprise to Task Force members, who were told that it was likely by NMFS personnel well before it happened (Long, 1996a). Indeed, there had been concerns about Rogue fish being listed for years (GPID, 1991b; Gordon Gregory, 1993b). The 1990s were a time when the Endangered Species Act (ESA) was tipping the political balance on rivers all over the region. The first Pacific salmon run was listed in 1990; by 2008, 31 of NMFS' 52 ESU's were listed (USDOC NMFS, 2008). The SONCC listing supported environmentalists' contentions about the dire state of Rogue River fish, made NMFS into environmentalists' ally and federal court into a promising venue for dam removal. The presence of a listed species and the fact that the dam's operations now constituted a taking permanently moved the parameters of the debate.

When McMurray testified (as a private citizen, not the sitting GPID chair) to the Oregon Senate in 1995, that the board individually wanted to save the dam, he noted that the recent Coho run had been the Rogue's largest since counts began (GPID, 1995f).²⁸ This objection – that the Coho was said to be threatened but the population appeared to be thriving – would come up repeatedly (GPID, 1997f; Pickett, 1997). The Cole Rivers Hatchery, upstream of Grants Pass, processed excess Coho into cat food, a fact not lost on the partisans of Savage Rapids (Deland, 1997; GPID, 1997f). Such questions reflect a significant political weakness of the Evolutionarily Significant Unit (ESU) system by which NMFS' lists endangered anadromous salmonids. Biologically and logistically, the ESU system is sensible. ESUs are formed by genetic similarity among a collection of rivers – fish born in one river are more likely to stray into nearby streams when they return to spawn, so fish from one region are likely to be relatively uniform – but this means that some individual streams, particularly if they have active hatchery programs, may well see large cohorts of listed fish (USDOC NMFS, 1991). The SONCC's ESU extends from the Mattole River in northern California to the Elk River just north of the Rogue. The system opens NMFS to severe criticism by people whose actions are curbed under the Endangered Species Act; the fine for taking an endangered Coho was expected be \$100,000 per fish (McMurray, 2011). Such a penalty would quickly have ruined GPID.

²⁸ Gold Ray Dam, since removed, included a fish counter that allowed people to track salmon populations in the Rogue every year, which is how people knew about the large Coho run.

Nonetheless, the save-the dam coalition was emboldened by the task force's recommendation, which some people seemingly confused with a final, legally binding decision (Long, 1997b), and by widespread local support. On July 22, 1997 the GPID Board reversed its 1994 decision and voted 3-2 to keep Savage Rapids Dam (GPID, 1997f; Long, 1997b). This did not change OWRD's perspective, though; Al Cook, representing the agency, noted that GPID still had to demonstrate their progress toward dam removal by September 1, no matter how the board felt about it (GPID, 1997g).

The vote was a bold move that had no plan behind it. Brady Adams explained that the state would not supply much money to retain the dam with Kitzhaber in office (Long, 1997d). GPID secretary/manager Dan Shepard reflected then that Adams' was beholden not to GPID, but to his district and the region as a whole – that his vision of the dam might emphasize recreation and a green Rogue Valley, not simply a healthy irrigation district (GPID, 1997d). In Washington, Senator Gordon Smith (R-OR) indicated his willingness to support SRD but noted that keeping the dam would be more difficult under the Clinton Administration (Long, 1997g). GPID's lawyer, David Moon, noted that it would be hard to convince the state to let them have an extra 52 cfs regardless of funding and that while some people believed that the state did not have authority to mandate dam removal, in his view it certainly did; at this he was criticized for his negative, unsupportive attitude (GPID, 1997f, 1997g; Long,

1997c). Board members discussed getting a biologist to gather data that could support their arguments (GPID, 1997i). They looked to implement the Task Force's recommendations with the dam in place – pumps, ladder upgrades, and so on.

To pay for all this, GPID raised its patrons' rates, though the rise would only account for about a fifth of their projected expenses (Long, 1997d). This worried some larger patrons, such as the Grants Pass Golf Club – they needed the water to survive, and they wanted it as cheaply as possible. Buying out would be expensive as well (Long, 1997d). As one patron said,

“If one board of directors voted to remove the dam because that was the cheapest way of providing the water, then another board should not come in and make us pay \$7 million more than necessary to provide the same water, but with a lake...If the people wanting to retain the dam feel it is that important to the community, then let them buy the dam from the GPID and pay to save it themselves. But I can tell from the tone of the opposition, they think they are on a mission from some god to control locally a state-owned waterway and are using GPID funds instead of their own to try and prove it.”
(Lundgren, 1997)

Two weeks later, after some agonizing, board member Bill Braunberger changed his mind, presciently stating that he saw nothing but litigation and attorney expenses for years into the future if they continued to defend the ageing dam (“GPID: Tear out the dam,” 1997). He further noted that, “the dam was built for a 50 year period and it has served us for 75 years. The dam is beginning to give us a lot of problems, there is hidden costs to retaining the dam that we don't even see at the moment. I even went

out and talked to the service men that have done work on the dam. They can tell you things about that dam that will turn your hair on end” (GPID, 1997i).

On August 12, the board formally voted to rescind its July decision to retain the dam (GPID, 1997h). The count was 3-1, board member Sam Attolico having died between meetings. Dam removal advocate Leon Guillotte later took Attolico’s seat. Steadfast dam supporter Marjorie Spickler (the lone vote to keep the dam) made a statement echoing German theologian Martin Niemoller. It is worth quoting in its entirety as a remarkable example of the ideology guiding part of the SRD debate:

“You all know that there is more involved here tonight than just water and the fish and I am thankful that the people that are sitting around this table weren’t part of our founding fathers or we would all be a British Colony. Before the vote, I would like to recall [indecipherable]²⁹ memory of the 40’s. He said when Hitler went after the Polls, he didn’t protest, because he wasn’t Polish. When Hitler went after the Germans, he did not protest, because he was not German. When Hitler went after the Christians, he did not protest, because he was not a Christian. When they came after him there was no one to protect him. We have the very same situation developing with this type of a meeting this evening. (GPID, 1997h)

Dam supporters, undaunted, began an effort to recall board chair Tom McMurray. Formerly a strong supporter of the dam, McMurray had voted for removal, believing that there was no way to overcome the SONCC listing (McMurray, 2011; GPID, 1997c). Dam supporters criticized him for caving in to OWRD and Waterwatch (GPID, 1997b).

²⁹ The statement was transcribed at the time by GPID’s assistant manager from a tape of the district board meeting, hence the inconsistencies.

These shifts, based on the comings and goings and feelings of individual board members, reflect the complicated position of the GPID board in relation to the advocacy coalitions. Every other stakeholder group approached the issue and joined coalitions based entirely on their values or organizational missions. The Board, pushed and pulled by legal obligations, economic realities, public opinion, the desires of district patrons, and members' individual beliefs, maintained an uneasy position throughout the issue, tied in different ways to each coalition and moved by many pressures.

From the outside, an increasingly active Dennis Becklin cast doubt on the waffling board's credibility and competence (Long, 1997e, 1997f). He announced his candidacy for a position on the board in that year's elections. The *Grants Pass Daily Courier* characterized Becklin as "a vocal and avid supporter of dam retention" (Long, 1997f). He offered a plan to take care of fish passage for \$12 million – cheaper than the task force plan (Long, 1997l). He also rode a swell of feeling that GPID was somewhat responsible to the community as a whole. In fact, GPID was beholden only to its patrons and its state and federal regulators, not to, for example, private well owners or the Jackson County Commissioners. As Tom McMurray pointed out in an op-ed, the cities and counties of the Rogue Valley did "not pay one dime for this water. Only GPID patrons contribute" (McMurray, 1997). The Bureau of Reclamation found Becklin's "bare bones" plan for dam retention unacceptable

(Long, 1997l). In September, Becklin and Spickler sued the GPID board, alleging conspiracy (Long, 1997j). The suit went nowhere, but it established Becklin as man of action. NMFS began to ask GPID for its fish passage plans and pointed out that the Task Force's plan could be considered a starting point but would not be sufficient to comply with the Endangered Species Act (GPID, 1997e; Long, 1997i). As the debate boiled on and letters to the editor of the Grants Pass Daily Courier grew increasingly passionate, Curry, Jackson, and Josephine Counties – the entire Rogue watershed – endorsed the effort to save the dam, crystallizing local support for SRD (Huntington, 1997; Long, 1997k; “Rogue River City Council to debate dam support issue,” 1997).

Enemies

In this increasingly controversial phase of the dam removal issue, Spickler's heated allusion to Hitler was not out of the ordinary. Dam opponents were repeatedly described as Nazis during the course of the SRD controversy; they were “throwbacks from the Hitler and Imperial Japanese regimes,” (Kaeser, 1997) and their tactics had “the markings of Karl Marx and of Joseph Goebbels of Nazi Germany” (Sloan, 1997). These insults were rarely aimed at specific people or organizations but on broader, shadowy groups. Specific groups like Waterwatch were labeled as “pink” (Sloan, 1997), “wacos” (GPID, 1997a), “wild-eyed environmentalists from San Francisco and Los Angeles” (Gordon Gregory, 1993c), and “self-appointed environmental terrorist(s)” (GPID, 1997f). It was suggested that they were part of “an agenda that worships Mother Earth instead of God” (Snyder, 1998). Even their

credentials as environmentalists were called into doubt. “So-called environmentalists,” it was said, were trying to remove Savage Rapids Dam, for nefarious reasons all their own (USDOI BOR, 1995; Woodcock, 1997). Task Force member Lyle Woodcock echoed this stance. Woodcock believed that the environmentalists were in it for money and that they really hoped that fish would never be saved; he blamed declining salmon runs on foreign fishing and marine mammals (Woodcock, 1997).

Casting an opponent as a pantomime villain may be an effective tactic to unify and inspire a coalition, but it is unlikely to create an efficient or amicable solution. Without much of a technical or scientific defense available, dam savers warned of vague conspiracies with existential consequences, an old tradition in American politics (Hofstadter, 1964). One commenter thought that “We should save the dam just to help save America” (Gordon Gregory, 1993c).

More realistically, dam savers cast their opponents from large environmental groups and regulatory agencies as outsiders interfering with local matters. To some in Grants Pass, the dam removal was a symbol of intrusive big government (Tappan, 2011). While such views are strong in many places, they are particularly potent in Southern Oregon, which has long perceived itself as separate from the rest of the state. Along with the counties of northernmost California, with which it shares a distinct history, geography and political culture, Southern Oregon semi-seriously identifies as the

State of Jefferson, a 51st state that would be independent of faraway Portland or San Francisco. The active movement to create an actual state of Jefferson ended many decades ago, but the sentiment and trappings remain, and the green Jefferson flag is commonly seen between Grants Pass and Yreka, CA. There are crosses on the Jefferson seal indicating that Jefferson has been “double-crossed” by the government, a sentiment strongly present in comments about dam removal and the Rogue River.

This suspicious attitude even extended to other parts of the Rogue Valley. Bob Hunter of Waterwatch, who lived in nearby Medford, was still seen as an outsider (GPID, 1994c). This may be partly due to the historic atomization of Rogue Valley society. There is little connection between the upper, lower, and middle Rogue, a subtle but important issue in forging land-use consensus (Thomas, 2003). Grants Pass is only 90 river-miles above the town of Gold Beach, but it takes three hours to drive there – longer than to far-off Eugene. Even within the Middle Rogue Valley, people from the liberal enclave of Ashland are seen as hippies and Grants Pass conservatives are called Cavemen (Hayden, 2012).³⁰ Future board member LK Kirtley, complaining about outside control of the dam, lumped Medford in with Salem and Montana as places from which GPID shouldn't have to take orders (GPID, 1994c).

All of this put resource agencies in a challenging political position. Agency missions and how they are emphasized within agencies have changed dramatically in recent

³⁰ Grants Pass is near the well-known Oregon Caves, and its high school teams are called the Cavemen, offering antagonists a tailor-made epithet.

decades, leaving personnel to adjust as best they can (Clarke & McCool, 1996). Agency representatives did not advocate publicly for anything beyond their findings and their missions; when the Task Force released its recommendation of dam retention, all agency representatives signed it. But agencies' findings and missions tended to put them on the same side as the environmentalists, and as the political pressures surrounding GPID's water right and the SONCC were decidedly in favor of dam removal, dam savers vilified the agencies as well as the environmentalists (GPID, 1999b; Long, 1997b). This transition away from the days when ODFW went out of its way to help GPID keep its water right is representative of the broader embrace of environmental goals by land and resource agencies (Clarke & McCool, 1996). While NMFS and OWRD could not stand shoulder-to-shoulder with Waterwatch, the dam savers felt that they did. Even Rep. Bob Smith (R-OR), in a sharp letter to NMFS, suggested that the agency had predetermined the fate of the dam (B. Smith, 1994). In GPID meetings, people complained that, "All fish agencies and environmental groups are working to see that Savage Rapids Dam is going to be removed" (GPID, 1993e; Gordon Gregory, 1994b).

To some extent this view of the agencies wanting dam removal was accurate. One agency employee, rarely named but frequently cited, did refer to himself and his colleagues as "dam busters" by email (Hamilton, 2011; GPID, 1998). He was quickly chastised, but the political damage had been done (Dewel, 1999). The shift from managing to conserving natural resources, noted above, was driven partly by the rise

of agency personnel – the like dam buster – raised and trained in a multiple-use, environmentally conscious world (Clarke & McCool, 1996). It is notable that several resource agency representatives, who have taken part in a variety of dam removal negotiations, now display concrete chunks of these dams prominently in their offices. Jim Martin, head of ODFW’s fisheries division, spoke openly of his goal, supported by his agency’s mission, to take out dams; as the *Grants Pass Daily Courier* said, he had a “hit list” (Associated Press and The Daily Courier, 1991). But such frankness was rare. Martin had the professional and mandatory authority and political backing to be a wholehearted advocate of dam removal, but in general agency personnel walked a thin political line (Martin, 2012).

In October 1997, OWRD held a hearing on GPID’s water right. Becklin, at this point something of a free-ranging political actor, had his credibility questioned by OWRC Commissioner Mike Jewett, and replied by saying that dam removal would happen one of two ways – either after a thorough examination of the sediment, or over his dead body (Long, 1997m). As noted above, there was no indication that the sediment was dangerous, but this continued to be an issue for dam advocates. As a result of the hearing, OWRD amended the 1994 water right, by setting out timelines by which to measure GPID’s progress in due diligence. The next month, GPID’s patrons recalled board chair Tom McMurray by a vote of 115-68 (Long, 1997n). Don Greenwood, who had circulated the Save the Dam petition, replaced McMurray on the board.

In November's board elections, Becklin defeated Leon Guillotte and staunch dam supporter L.H. Kirtley defeated Nancy Tappan by significant margins (GPID, 1997c). Kirtley asserted that the dam did not kill fish and was sure that no judge "with any sense at all" would deny GPID its extra water (Long, 1997o). Guillotte and Tappan had favored dam removal – Tappan partly because, as a vineyard owner, she needed water to sustain her business. She noted that many of the dam savers were not true irrigators, which freed them to fight for the dam with minimal personal consequences if GPID lost its water. She worried for the future of the district (Long, 1997p). Guillotte, a colorful character, said that this loss proved that "the majority of the people that voted are dumber than a codpiece," urging them to look up the definition of "codpiece" in the dictionary, and said that the patrons were "lemmings following the pied piper (presumably Becklin, whom Guillotte did not like) over the dam" (Long, 1997p).

The Dennis Becklin Board

In the first GPID board meeting of 1998, Dennis Becklin grasped GPID's "helm with an iron hand" (Buck, 1998). He presented the board with a District new mission statement, one that incorporated SRD's non-irrigation amenities that enhanced the quality of life in Grants Pass, and called the distribution of GPID's water "an inviolable community trust vested in GPID by its patrons and by the community at large" (Buck, 1998). Becklin asked each GPID employee for "total dedication to the cause." He committed to "a constructive dialogue" with NMFS and OWRC and, said

the *Daily Courier*, had “the open aim of preserving current water rights while staving off demands for dam removal” (Buck, 1998). Becklin was named the sole spokesman for the district (Buck, 1998). The district fired its longtime lawyer, Jack Davis, and replaced him with Becklin’s attorney, Chris Cauble (GPID, 1998b). The new board voted to inspect the dam and fish passage facilities daily, in an effort to operate the structure for optimum fish passage as well as its other functions. Board meetings were moved from once a month to once a week (GPID, 1998b). Two weeks later, GPID terminated its relationship with RVCOG, which was guiding talks away from lawsuits (and therefore toward removal), and decided to handle the issue by itself (Harper, 2011; GPID, 1998a). Going forward, Becklin would sometimes refer to “this board,” distinguishing it, and its way of doing business, from its predecessors (GPID, 1998i, 1999c). The new board of Becklin, Kirtley, Spickler, and Greenwood (Braunberger resigned at the end of 1997 and was not replaced for a year) had engaged in much policy learning, particularly through Becklin’s experience on the Task Force, and felt well equipped to move forward.

Legally, GPID’s commitment to dam removal still stood, and GPID had to demonstrate due diligence in pursuing removal. Waterwatch, alleging that GPID had not done due diligence, asked OWRC to begin a contested case hearing on the water right, to be finalized in November (Hunter, 2014; Long, 1998a). GPID went ahead with studies of potential dam upgrades, hoping for funding through Brady Adams (Long, 1998g). In November, the OWRC denied GPID’s water right, saying that it

had not, in fact, done due diligence (Long, 1998x). GPID appealed to the Oregon Court of Appeals, and the water kept flowing in the canals.

With a federally listed salmon swimming over the dam, the board also had to contend with NMFS. In late 1997, GPID had hired Harza Engineering to help form their Habitat Conservation Plan (HCP) and set about re-engineering SRD's fish passage (GPID, 1998b). GPID also hired Cramer Fish Sciences to ascertain the level of Coho mortality at the dam. Cramer found almost none (Pelissier, 2003, 2004, 2005, 2006), but was criticized for its methodology, and for having performed its studies after the fish were expected to have passed above the dam (Hunter, 2011; Long, 1998d, 1998e).

The fact that this latest and most significant threat came through the federal government was not lost on the patriotic conservatives of Grants Pass. In an op-ed column, Marjorie Spickler announced that, "I, for one, still stand tall when I salute our flag. I still suppress tears when Old Glory is unfurled or when 'The Star-Spangled Banner' is played. I resent giving up our rights to Washington – and ultimately to the United Nations." She called SRD a test case for federal takeovers and warned that all major rivers and dams would follow (Spickler, 1998). This perspective was difficult for the agencies or dam removal advocates to counter.

In 1998, a messy process unfolded wherein Becklin and the board attempted to shore up fish passage more or less unilaterally, and present their plans to NMFS as they went along (GPID, 1998d, 1998f; Long, 1998g). NMFS, unimpressed, repeatedly pointed out the inadequacies of GPID's plans in an increasingly exasperated correspondence (Gaar, 1997; Morris, 1997, 1998; Stelle, 1998). NMFS emphasized that any interim fish passage measures had to be accompanied by an effective commitment to no net take of Coho, which, it eventually became clear, meant dam removal (Long, 1998a). Becklin fired back some defiant letters, raised the issue of destructive sediment releases after dam removal, and forged ahead (Becklin, 1998a; Long, 1998a). He personally funded a study of SRD's sediment load, which eventually indicated no toxicity (Long, 1998b, 1998n). Becklin insisted that the salmon were at the heart of GPID's concerns, trumpeted the district's "mission to protect every salmon and steelhead possible" and said that if "a small band of dam haters" would not support these efforts, then they were not real environmentalists (Becklin, 1998b; Long, 1998s). He lauded his board for its "courageous battle" (Becklin, 1998b). Brady Adams found GPID some state money to purchase upgraded fish screens (Long, 1998t).

To NMFS, Becklin's screens were "a waste of money" (Long, 1998u).³¹ While some of GPID's efforts to improve SRD's fish passage were helpful, and acknowledged as such by NMFS, its actions were taken essentially on its own, without effective

³¹ Becklin later admitted that they did not meet the agency's criteria (Long, 1998v).

cooperation with the agency (Duewel, 1999a). In April 1998 NMFS, deciding that court was the only way to get GPID to protect the Coho, filed for an injunction against GPID (Long, 1998g). Will Stelle, NFMS' regional director, again called SRD the worst fish killer on the Rogue, and asserted that "while Oregonians work hard to save these imperiled runs, this dam completely undercuts those efforts. Everyone knows it, and knows that it's time to fix it" (Long, 1998f). The environmental law group Earthjustice, representing Waterwatch and some other NGO's, intervened. When GPID raised the dam for the 1998 irrigation season, it knew that it might be violating the Endangered Species Act (Long, 1998i). GPID responded by claiming that NMFS had never intended to work with them and had always intended to take out the dam, noting the "dam busters" email (mentioned above) (Long, 1998j). In May, irrigation was halted for ten days after Judge Michael Hogan of the Ninth Circuit said that both GPID and NMFS bore some fault and ordered them to work together (Long, 1998k, 1998l). NMFS agreed to allow irrigation for the remainder of the 1998 season while GPID performed some interim mitigation, and the two sides continued to negotiate (Long, 1998m). In September the environmental group Earthjustice, unsatisfied, announced its intent to sue GPID for violating the Endangered Species Act ("Environmental group says it will sue GPID if dam isn't removed," 1998; GPID, 1998l). Curry Guides and other fishing groups also joined the suit (Tienson, 2012).

Fighting NMFS, OWRD, and the NGO's grew increasingly expensive. Between 1988 and 1999, patron fees skyrocketed from \$35 to \$115 per acre (Becklin, 1999). In 1998 GPID was paying four lawyers (Cauble, a water specialist, and two Endangered Species specialists) (Long, 1998e). In August 1998, Becklin admitted that GPID was \$225,000 over budget (GPID, 1998k). Patrons, especially those whose businesses relied on water, were concerned (Gove, 1998; GPID, 1998k; Long, 1998d, 1998h). Earlier in the year, the board had reached out to the larger irrigators directly, but had not been able to give them much concrete assurance that they would get their water (GPID, 1998e). Some concerned patrons organized into a group called "Citizens for Responsible Irrigation" to combat the Becklin board (Gove, 1998; Vejtasa, 1998). They argued that the purpose of GPID was to get water and that the board should stop "throw(ing) away" their money in a high-risk, low-reward battle for the dam (Gove, 1998). Patrons began to buy out of the district in increasing numbers (GPID, 1998m). GPID board meeting minutes betray a growing personal animus between the board and some of its opponents in and out of CRI, which served to inflame an increasingly tense situation (GPID, 1998c, 1998g, 1998j).

GPID looked around for more money. The lakeside property owners, having as much to lose as anyone, seemed a possible source, but GPID had no leverage to extract money from non-patrons, and these property owners' commitment to the dam dissolved when they were asked to help. In the late summer of 1998, the Board made a supplemental assessment, asking patrons for an extra \$20 per acre. This, on top of

the risk of losing the water right, provoked a backlash against the board, and against Dennis Becklin (GPID, 1998k; Long, 1998p, 1998q).

Becklin's personality and leadership style created strong opinions in almost everyone who met him and while he inspired some people, he infuriated others (Guillotte, 2012; Strahan, 2012; Adams, 2011; Cauble, 2011; Hunter, 2011; Greenwood, 2011; Kirtley, 2011).³² People criticized his "swaggering, publicity seeking and publicly antagonistic behavior" (Evans, 2005). They resented paying more for what they believed to be an emotional crusade (Roler, 1998). Becklin's public statements were cautious and equivocal, but he was widely considered to be in truth a champion of keeping Savage Rapids Dam (Hunter, 2011; Strahan, 2012; Long, 1997e). Some believed that his interest in Savage Rapids came because he owned property downstream of the dam site and therefore enjoyed good fishing and a quieter river (Guillotte, 2012; Hunter, 2011; Moore, 2011). Another board recall effort, aimed at Becklin and his allies, began in the summer of 1998 (Long, 1998q). GPID, always in a tenuous political position, now split into factions, with a vocal group of patrons, including some of the largest irrigators left in the district, advocating for the removal of the dam to secure the district's irrigation water (Tappan, 2011).

³² Becklin refused repeated interview requests. As of 2011, he was writing his own account of the Savage Rapids controversy.

The New Old West

Such a conflict is symptomatic of a social transition characterized as “the New West.”

The New West is sometimes typified as “ranches to ranchettes,” as white-color, conservation-minded, amenity-driven outsiders move in to formerly resource-based rural regions in the American West (Robbins, Meehan, Gosnell, & Gilbertz, 2009). Such migrants might be expected to result in an alliance with environmentalists and a greater likelihood of dam removal, but instead, GPID’s transformation into a collection of hobby farms and half-acre lawns likely lengthened and complicated the dam removal issue (Hunter, 2011; Shepard, 2011). As board member and vineyard owner Nancy Tappan noticed, few GPID patrons really needed the water, and this freed those who favored the dam to fight beside Dennis Becklin on ideology alone. Some in Grants Pass believe that had GPID’s patrons depended on cheap water for their economic livelihoods, they might have struck a deal quickly and secured that water, whether delivered by pump or by dam (Hunter, 2011; Shepard, 2011; Duetzel, 2000a). By the same token, though, a real irrigation district might have gathered the political clout to eliminate the environmentalist challenge in the 1980s and secure their extra 50 cfs with minimal fuss. As Jim Martin (2012) noted, agriculture is a powerful force in American water politics. Active farmers would have had a far more legitimate economic argument for needing the water and also likely had a better working understanding of the water rights system – Dan Shepard (2011) acknowledges that GPID failed to effectively educate its patrons on this sort of technical issue. In the event, the larger remaining irrigators – a golf club, a vineyard,

a cemetery (a very New West set of businesses) – did lobby to retain the water as cheaply as possible (GPID, 1998k, 2001b). To them, the issue was the water, not the dam (GPID, 1998k, 2001b, 2003). But they were in a minority.

Retirees like Don Greenwood, while new to Josephine County, brought along their generational conservatism and pro-dam ideology (USDOJ BOR, 1995). These were Robbins’ amenity-driven migrants, but among the amenities they enjoyed were quasi-natural flatwater recreation (“Our beautiful dam with a big lake” (GPID, 1995e)) and groundwater recharge provided by GPID and SRD (Geiske, 1979; GPID, 1994b). These people were not invested in the irrigation district as such; state Representative Dennis Richardson (R-Central Point) would later distinguish between the dam savers and the district savers (GPID, 2002c).

At the same time, the nature-based New West economy had always been there, as Clark Gable, Zane Grey, and their fishing guides knew. It continued to matter – Bob Hunter and Bernie Moore are classic New West migrants, having both come to the Rogue Valley from Michigan and joined Rogue Flyfishers. In 1999, Dave Strahan and Maddy Sheehan of NSIA wrote guest opinions for the *Daily Courier* noting that as sport-fishing professionals they, too, made a living from the Rogue, and that dam removal was not just a matter of environmental nature worship but of sustaining their industry and of bringing valuable tourists to Southern Oregon. They criticized “the

illusion of lakeside living” that allowed a fish-killing dam to stay standing (Sheehan & Strahan, 1999; Strahan, 1999).

The dam savers steadfastly refused to believe that the dam killed fish (Kirtley, 2011; Gordon Gregory, 1994a; LaBounty, 1994b; USDOJ BOR, 1995). This was in spite of many studies, which they specifically rejected, and even eyewitness accounts of dead juvenile fish in the irrigation ditches and the turbines (Dewel, 2001d; GPID, 1998k; Gordon Gregory, 1994a). The scientific conclusions in the EIS were seen as illegitimate because they drew on other rivers, despite assurances from ODFW that other rivers provided legitimate models for the Rogue, and reminders that over many years of study at Savage Rapids itself, biologists had firmly established that the dam was deadly for fish (Ingram, 1994). The anti-removal Three Rivers Watershed Council spoke of getting their own assessments to prove their point (Greg Gregory, 1994) – a perspective reminiscent of creationist pseudoscience.

These arguments did not resonate partly because many of these people had personally watched the migrating fish “taking their time,” and swimming up the fish ladders (McMurray, 2011). Since the dam visibly worked, foreign fishermen in the ocean were blamed for the decline in the Rogue’s fish (Dewel, 1985; GPID, 1991c; Woodcock, 1997). SRD’s fish ladders were even something of a tourist attraction. To some people in Grants Pass, the ladders not only worked, they were necessary to keep water levels sufficient for salmon (Dewel, 1985). Dam defenders demanded visible

evidence of dead fish, which for them meant bodies around the dam (Duewel, 1986; Gordon Gregory, 1994a). Later, local removal advocate and fishing gear salesman Dave Strahan filmed mergansers (*Mergus merganser*) at the dam eating juvenile fish in bunches, but this did not have much effect (Duewel, 1999a). The subtler impacts of delay on salmon populations and the destruction of smolts on their downstream migration (confusingly referred to by Bob Hunter as “invisible fish” (USDOJ BOR, 1995) were not communicated effectively by the environmental groups or the agencies. This established conflict. The dam’s identity as a fish killer with terrible passage was a policy core belief for the removal coalition, and they would not yield on the point. For the dam savers, fish passage was a secondary issue. Later, the dam supporters got their own science in the form of the Cramer study on juvenile mortality, but it only served to confirm what they already believed. Bob Hunter compared the dam savers’ science to that wielded by the tobacco industry (B. Hunter, 1999).

In the face of angry patrons, the board backed down, tiering the supplemental assessment, in such a way that it brought in less revenue while failing to mollify the CRI or anyone else (Long, 1998r). As *Daily Courier* editor Dennis Roler pointed out, the situation had forced GPID between a rock and a hard place – either lose the water and disappear, or agree to remove the dam and go broke trying to pay for removal – unless they could put together a strong plan for external funding (Roler, 1999). Like most other locals, Roler hoped that Grants Pass would stay green. In 1999 the Oregon

legislature passed a bill guaranteeing GPID its extra 52 cfs, but it was symbolic – there was no doubt that Kitzhaber would veto it (Associated Press and the Daily Courier, 1999; B. Hunter, 1999; Roler, 1999). Becklin decried the “attempt to coerce the district into a forced removal of Savage Rapids Dam without appropriate compensation...the GPID Board of Directors will not be swayed by coercion of the governor, his bureaucratic agencies and from environmental extremists” (Associated Press and the Daily Courier, 1999).

Resolution

In 1998, Judge Hogan ordered the parties into mediation – a forceful attempt to weld stakeholders into a single coalition, force consensus, and create a negotiated resolution. The ESA take case before Hogan would have either resulted in an unscientific and damaging precedent, had the court decided in favor of GPID, or the unpopular destruction of an irrigation district (had the court decided in favor of NMFS and the environmentalists). This was something like another Task Force (Shepard, 2011) but with the real threat of the district’s collapse looming if negotiations didn’t work. During mediation, BOR performed a new study of the Savage Rapids silt load, finding little sediment and low levels of toxicity, establishing that the dam removal would not be held up by this issue (Dewel, 2000i).

At the end of 1998, a few GPID patrons reported Becklin’s somewhat ad hoc fish passage work to the Oregon State Board of Examiners for Engineering and Land

Surveying saying that Becklin made false claims to be an engineer (Funk, 2012). Becklin, for his part, didn't believe that anything he was doing constituted a violation of Oregon's engineering laws (Duewel, 1999h). This micro-issue hardened lines in GPID – some patrons were for Becklin and the dam, some against him.

After months of closed-door negotiations (there was a gag order on participants, and the dam removal was no longer an allowable subject at GPID board meetings) and relative calm, Becklin seized the initiative in July 1999 and released his own plan for dam removal (Duewel, 1999b). The plan was so broad and expensive – it included subsidized electricity for the pumps and \$10 million to build a riverside recreation area including a water slide – that many did not believe it to be a legitimate offer (Duewel, 1999c; Gove, 1999). Rather, Becklin's plan was seen as more of a shield behind which dam retention advocates could fight after environmentalists and agencies rejected it. The district court's response was to instruct Becklin to comply with the gag order (Duewel, 1999c).

At about the same time, SRD's pump system broke down, to the dismay of patrons; normal service was not restored for two weeks (Duewel, 1999d, 1999e). In September, the dam's fish screens were damaged by moss, again shutting down GPID's canals. The dam appeared to be becoming a financial liability. Patrons kept looking to buy out of the district, to the disappointment and disgust of the board (Guillotte, 2012; Duewel, 1999e). GPID sued the buyouts, arguing that they were

maliciously orchestrated by Leon Guillotte and the CRI, and that “this group...made something of a sport of attacking the GPID” (Duewel, 1999g; GPID, 1999c).

In November 1999, Judy Gove, a leader of CRI, was elected to the GPID board on a dam removal platform (GPID, 1999a). She referred to her victory as “a crack in the dam” (Duewel, 1999i). Seeing the way things were going, Becklin revised his dam removal proposal, taking out the water slide (Duewel, 1999j), and drummed up support from his political allies in Salem. Brady Adams called the plan “the minimum needed to protect the interests of the community and the district,” and state rep. Carl Wilson (R-Grants Pass) said, “to the federal government...if YOU want it removed, YOU pay for it” (Duewel, 1999k). Becklin also wrote an op-ed in the *Daily Courier*, reiterating his previous points and saying that this plan would be fair for everyone. At a rally in December 1999, Becklin spoke of “a very strong umbilical cord between the community and this dam” (Duewel, 1999l). Many people would not support the removal plan either – though some did hope that the plan might be too expensive for the government, making it give up and resulting in the district keeping the dam (Duewel, 1999l).

The board submitted the revised dam removal plan to its patrons in January 2000. The patrons, heartily sick of the conflict and the legal fees, supported the plan, 1821-1088 (GPID, 2000b). Becklin was told that according to GPID’s bylaws the board chair could only sit for two years (Shepard, 2012). Don Greenwood replaced him, and

shortly thereafter, Becklin resigned from the board. As Greenwood saw it, his job now as chair was to save the district (Greenwood, 2011). Becklin, for his part, continued to comment vigorously on the Savage Rapids issue through some news websites that he managed (Becklin, 2005). He later moved away from Grants Pass.

The water right case was still proceeding. GPID, knowing that it could not improve its case for extra water, asked for an extension nine times without filing a brief, the absurdity of which was pointed out by Bob Hunter (R. Hunter, 2000). This situation having become clear, the Oregon Court of Appeals threw the case out for want of prosecution in June 2000 (Duewel, 2000g; Roler & Snyder, 2000; Whitworth, 2001). GPID appealed the case to the Oregon Supreme Court. This stayed the water right decision for the 2000 irrigation season (Duewel, 2000g), and also gave GPID time to work things out with the agencies and Waterwatch while retaining its ability to irrigate.

Waterwatch and its allies, armed with evidence that 63% of GPID patrons favored dam removal, pressed on with their removal case (Hunter, 2011). They were very dubious of Becklin's plan itself, worrying that it was all a political game to keep the dam, but felt that the vote and Gove's election indicated a shift in the patrons' feelings (Duewel, 2000b).

In late May 2000, one of the dam's turbines broke, leaving a third of patrons without water (Duewel, 2000c). The bill for a new turbine that would appropriately replace the original one from the 1920s would be over \$200,000 (Duewel, 2000d). The patrons were furious (Duewel, 2000f). At an energetic meeting, they decried the board's "love affair with an aging dam," and pointed out that if the 1994 and 1997 votes to remove Savage Rapids had been honored then this would likely not have happened (Duewel, 2000f). The turbine wasn't repaired until mid-July (Duewel, 2000e).

With the board majority and district's patrons having agreed to dam removal, federal legislators and state agencies began to take the first steps, releasing funds for pump design studies (Duewel, 2000j, 2001b; Widdison, 2001). In Washington, DC, Senators Smith (R-OR) and Wyden (D-OR) introduced the Savage Rapids Dam Act of 2000 (G. Smith & Wyden, 2000). In Grants Pass, Don Greenwood's stance had moderated over the course of the long process, and under his leadership the board worked amicably with Waterwatch - GPID put out a joint press release with Waterwatch and Trout Unlimited announcing the introduction of the bill (GPID, Waterwatch of Oregon, & Trout Unlimited, 2000).

The political work of the dam removal opponents required some undoing. The GPID board wrote to the Rogue Valley counties' Commissioners asking them to reverse their previous pro-dam policies (GPID, 2000a). The Oregon Farm Bureau, concerned

about an irrigation district having to remove its dam, expressed skepticism about the dam's effect on fish and complained to Senators Smith and Wyden, but five state legislators representing Southern Oregon wrote to their counterparts in Washington DC disavowing the Farm Bureau's stance on behalf of their constituents (Duewel, 2001c).

Removing the Dam

In July 2001, the board voted to sign a consent decree with the other stakeholders, formally agreeing to dam removal. Kirtley and Spickler were still unhappy about it. In the last few meetings before the vote, Kirtley connected the Savage Rapids removal to Klamath Lake, where another battle over water allocations and dam removal was heating up. This, of course, wasn't GPID's problem, as Judy Gove (who had voted for dam removal) pointed out, but Kirtley valued all dams (GPID, 2001a). Kirtley and Spickler voted against removal and then resigned, applauded by a large number of the people at the meeting (Duewel, 2001d). The rest of the board voted in favor, noting that it would end all litigation, ensure 150 cfs of water, and put GPID in the good graces of the National Marine Fisheries Service (Duewel, 2001d). To Dan Shepard, the situation was simple: "We're basically out of funds. We have to secure water and we have to run a business. We gave it the college try and lost. That's that. We're going forward... the majority of the patrons of this district are tired of kicking the dog. They want the water" (Duewel, 2001d). Kirtley and Spickler's replacements favored dam removal. The next month, the board voted to return to the old, pre-

Becklin mission statement, removing the clauses that gave GPID responsibility for the well-being of the broader Grants Pass community (GPID, 2001b).

On August 27, 2001, all parties – GPID, NMFS, OWRD, BOR, and Waterwatch – signed the Consent Decree. A ceremony marking the agreement was held in October in Governor Kitzhaber’s office. While many people in the community still wished to keep the dam, the Consent Decree enforced consensus and allowed the signatories to frame themselves as one united coalition, which politicians and the public could view with favor. Kitzhaber was delighted, saying that,

“the Rogue River is one of Oregon’s most spectacular natural treasures. The waterway is legendary for its scenic beauty, fish and wildlife and amazing whitewater. Today I’m pleased to be here with conservationists, irrigators, and federal representatives to announce and landmark agreement to restore and protect this incredible river, while still allowing farmers to meet their water needs”
(Dewel, 2001e).

After the conflict that had marked the dam, everyone was happy to have it over – Don Greenwood referred to it as a “peace treaty” (Associated Press, 2001) – and the signing ceremony was something of a “joyous occasion” (Strahan, 2012). The consent decree allowed GPID to continue to operate the dam until 2006, giving everyone time to gather federal support for the removal.

The next step was to pass federal legislation, so the stakeholders went to Washington in force. One condition the fish interests had insisted upon in the Consent Decree was

that GPID had to hire lobbyists to better secure federal funding and keep the district financially vested in the dam removal effort – GPID had to pay their lobbyists a minimum of \$50,000 a year (Giguere and James, 2012). GPID engaged Michelle Giguere and then Dan James, both of Ball Janik, a Portland and Washington, DC law firm. While the lobbyists went to work, national environmental organizations with a stronger presence in Washington than Waterwatch stepped forward to lobby for dam removal, and American Rivers, the World Wildlife Fund, and Trout Unlimited all contributed (Raabe, 2012). These groups had always supported the removal effort, but until this point they had had not had any role to play that was not better filled by Waterwatch. The collaboration was smooth, particularly as Bob Hunter enjoyed close ties to these national organizations: his sister-in-law was the senior director of American Rivers' dam programs, and his former Waterwatch colleague Jeff Curtis worked for Trout Unlimited (Bowman, 2012; Curtis, 2012; Hunter, 2011). The environmental coalition was challenged not only to raise funding, but to assure skeptical members of Congress that Savage Rapids would not necessarily be a springboard to other bigger removals on rivers like Washington's Snake (Giguere and James, 2012).

There was also lobbying by economic dam removal advocates like the Northwest Sportfishing Industry Association and local fishing interests like Curry Anadromous Fishermen (Beyerlin, 2012; Hamilton, 2012; Strahan, 2012). Looking to expand the coalition, GPID sought support from such irrigation industry bodies like the Oregon

Water Resources Congress and the National Water Resources Association (GPID, 2002a). The American Farm Bureau itself would not express support, but stayed neutral (Giguere and James, 2012). Hundreds of GPID patrons also wrote to Congress individually (GPID, 2002b). The fear of Grants Pass returning to its historic arid conditions was now used to urge appropriations for dam removal (Howard, 2005; Skevington, 2005). While many of the stakeholders lobbied for funding, much individual credit went, as it had throughout the process, to Dan Shepard. Shepard had kept the district operating through its many political permutations, and his testimony and august personal presence made a strong positive impression on lawmakers and agency personnel when he represented the district in Salem and in Washington, DC (Beyerlin, 2012; Giguere and James, 2012; Repine, 2012).

Congress presented its own challenges. Members were uncertain and skeptical of supporting any removal, but key Republican members of the Oregon delegation Gordon Smith and Rep. Greg Walden, having demanded and seen demonstrations of support from the community (Strahan, 2012) were convinced that all stakeholders wanted this, and with the Oregon delegation behind the dam removal there was little outright resistance (Giguere and James, 2012). However, as Oregon did not have an appropriator in the House or the Senate, funding was more difficult to come by (Giguere and James, 2012). Giguere found it useful to point out the Consent Decree was signed under the Bush Administration, not Bill Clinton – this mattered in the early 2000s (Giguere and James, 2012). Senators Smith and Wyden introduced the

legislation in various forms several times, using frames that appealed to each side's values. In 2002, they took dam removal out of the bill's name, calling it the "Grants Pass Irrigation District Improvement and Rogue River Restoration Act" to keep the focus positive for all (Duewel, 2002a). Senators Smith and Wyden and Representatives Walden, and DeFazio, in a letter to the Bush Administration, said that, "The Savage Rapids Dam Consent Decree stands as a unique example of how natural resource disputes can be resolved in a way that keeps the local agricultural community viable, while achieving important goals for the restoration of anadromous fish runs" (G. Smith, Wyden, Walden, & DeFazio, 2005). For Republicans, the Act secured irrigation water for farmers, and for Democrats, it restored the Rogue River ecosystem. As Wyden said, "The funding is a tribute to a community that came together to find a win-win solution for fish and farmers" (Duewel, 2005b, 2006a). It is likely that Wyden and his colleagues, who had been aware of the SRD debate for nearly a decade by then, knew that there were almost no farmers in the district. But casting the bill as a defense of farmers would make the deal more palatable to colleagues who represented agricultural irrigation districts. John Kitzhaber, as noted above, had engaged in similar rhetoric. The Savage Rapids legislation passed in 2003 as part of an Energy and Water Development Appropriations bill. BOR was now authorized to proceed with dam removal.

The final challenge was to gather money. Congress's focus on the War on Terror made appropriations difficult to find in the early 2000s (Giguere and James, 2012;

Duewel, 2002b). The Oregon Watershed Enhancement Board (OWEB) had pledged \$3 million for dam removal in 2002, demonstrating the state of Oregon's earnest support of the project. This counted heavily in Washington DC (Giguere and James, 2012; Bierly, 2011; Shepard, 2011). Providing added motivation, OWEB's money was not available for spending until the actual structure was being removed (Bierly, 2011). Appropriations came in small pieces for studies and pump installation in 2004 and 2005, though these were greeted with gratitude and taken as proof that the project really would happen in the end (Duewel, 2004, 2005b). GPID received several extensions of its right to operate the dam – since the District was strenuously doing its due diligence by earnestly seeking funding, there could be no reasonable objection from the state (Duewel, 2005a, 2006b). In 2006, real money came through: GPID received \$13 million that summer. By the fall the contract to construct the pumping station was awarded (Duewel, 2006c). \$15 million came the next year (GPID, 2014). The last \$3 million came with the American Recovery and Reinvestment Act of 2009 – the stimulus – which also helped fund the Elwha and nearby Gold Ray Dam removals (Raabe, 2012). The pumps were running that summer.

The summer of 2008, the last of Savage Rapids Lake, was filled with sentimentality. People waxed nostalgic about water skiing and boating down on the lake, and continued to criticize the dam removal decision (Duewel, 2008). Some people noted perceptively that the pumps would be expensively powered by coal from Wyoming rather than the flow of the Rogue River (Shepard, 2011; GPID, 1998k). Of course, the

pumps did bring their own problems: they sometimes malfunctioned, especially as the river's sediment began to move (Duewel, 2009a). A local historian, in the midst of this dam removal ferment, put together a book featuring old photos of the Rogue River dams (Momsen, 2009).

On October 9th 2009 Savage Rapids Dam was removed. The lobbyists had looked into getting the dam demolished by the Department of Defense as a training exercise (Duewel, 2002a), but in the end, the removal was planned as a straightforward deconstruction project, with coffer dams rerouting the Rogue and the concrete being broken down and taken out. The edges of the dam were left standing at the water's edge. Two days later, an exuberant flotilla of some 80 dam removal advocates floated down through the open (and unstable) Savage Rapids Dam site in drift boats, rafts, and kayaks (Duewel, 2009; Tienson, 2012; Hunter, 2011; Moore, 2011). Chinook salmon (*Oncorhynchus tshawytscha*) spawned in the reach formerly occupied by Savage Rapids Lake almost immediately (Van Dyke, 2012).

As Brady Adams (2011) noted, the dam removal has not been the disaster that its critics predicted, but it has not been perfect, either. The sediment, while non-toxic, has been slow to move downstream, one of the pumps didn't work, and electricity to run the pumping station is expensive. However, the pumps are unlikely to fail catastrophically as the 1921-vintage dam did in 2000. The electric bills encourage the pursuit of efficient water use, left mostly behind since the JCWMIS – GPID's bills go

down when it pumps less water (Hamilton, 2011; Shepard, 2011). While there have been positive indications for the salmon, spawning in the lake site and observations of fitter-looking fish upstream (Strahan, 2012), there is little ability to monitor how much difference the Savage Rapids removal has made to salmon, as rate at which fish passed upstream of the dam was never calculated. These issues are relatively small compared the existential crisis GPID feared.

The district continues to send its water down the irrigation canals, boaters and salmon drift past the dam site unimpeded, and Grants Pass is as green as it can be. Tom McMurray, in 2011 once again chairman of the GPID board, credits Waterwatch, and the negotiated settlement it demanded, with saving the district (McMurray, 2011). At the same time, as Dan Shepard has observed, Waterwatch's work with GPID gives it credibility in the Rogue Valley and allows it to progress on future projects without being seen as the group that killed GPID (Shepard, 2011). As a result of his personal style while pushing for the removal of the dam, Bob Hunter now enjoys a fine reputation as a fair, consistent, collegial, and principled environmentalist (Curtis, 2012; Martin, 2012; Tehan, 2013; Moore, 2011; Shepard, 2011). Several other dams have been removed in the Rogue Basin, and in coming decades there should be some indication of whether increased passage means increased salmon populations. On Bob Hunter's car, a bumper sticker that bore the message "Take Out Savage Rapids Dam!" has been amended to read "Took Out Savage Raids Dam!" But nostalgia

remains. There are still two photos of Savage Rapids Dam on the wall in the Grants Pass Irrigation District offices.

Conclusions

The Savage Rapids Dam conflict was open and wide-ranging, offering actors an array of political options but demanding creativity in choosing between them. Stakeholders faced a complicated situation, even by the standards of dam removals, from the beginning: the issue could only begin when environmental groups found a venue in which they could contest GPID's water right. While there had always been an undercurrent of discontent with Savage Rapids Dam, there had never been a clear way to force the issue until the 1980s. From then on, state and local agencies and lawmakers all played important roles before a massive effort to collect federal funds and remove the dam.

At the core of the issue lay the fact that dams are machines that change their landscapes, private tools that rely upon the alteration of public waters to provide their intended function. Beyond this inherent tension, dams create separate benefits that are used and viewed like public goods but are not, in fact, owned by the public – in the case of SRD case, recreation and groundwater recharge. GPID did (and still does) green much of Grants Pass, but this is not its job. Dams are rich in Stonian (2002) paradoxes. It is extremely difficult to reconcile these incidental effects with economic and legal decisions about dam management. The many functions of SRD led to

different Grants Pass community members having different relationships to, and perceptions of, the dam and the river.

The result was clashes over values and beliefs. One of Waterwatch's slogans is "Rivers need water" (Waterwatch of Oregon, 2014) but people in Grants Pass asked, "How can they withhold water God gave us and let it run into the ocean?" (GPID, 1997b). Such dissonance yielded fears of hidden agendas (for example, Woodcock, 1997), as people on both sides of the issue could not accept their opponents' statements at face value. Failure to understand how an environmentalist might be deeply, profoundly opposed to dams and care about salmon restoration more than about preserving Savage Rapids Lake led environmentalists' opponents to grasp for their "real" motivations. A conspiracy to return the Rogue Valley to wilderness and spread communism seemed a more plausible story than working toward ecological restoration.

The political systems governing water rights and fish passage allowed all stakeholders a variety of opportunities to fight for their beliefs. Those who found themselves abandoned or unrepresented by existing organizations could continue to engage in the political process by joining or even founding an advocacy organization that did reflect those beliefs – note organizations like ASS, begun by disgruntled members of the Grants Pass community. While such organizations had limited political options, they contributed to pushing the debate from Grants Pass to Salem.

The GPID board itself offered concerned patrons both an outlet for expressing their views and a convenient way to access power, and to wield it if they were elected. A post on the board was relatively accessible; even in the heightened tensions of late 1997, some board elections had less than 200 votes cast in total (Long, 1997n). The intensely local debates and relationships that changed the course of GPID also meant that well-connected stakeholders could effectively reach the public by such simple expedients as letters to the editor or the local promotion of their own plans – as occurred when Dennis Becklin suggested his dam removal/water park plan in 1999.

Mirroring the dam's dual public-private status, the ill-defined semi-governmental status of the Irrigation District added a layer of complexity to the issue. GPID essentially had the power to levy taxes on anyone who bought property in the district, but this system made less and less sense as patrons stopped farming. A school district may be broadly accepted as a public good towards which most people are willing to pay even if they do not have children, but in Grants Pass, people in essentially urban neighborhoods were not willing to pay for water that they did not need or, in many cases, use at all. At the same time, GPID operated within the narrow limits set by state and federal laws and agencies, and had to run like any other regulated business. Irrigation Districts are beholden to their patrons, much as a corporation is beholden to its shareholders. Patrons and shareholders might each buy out at any time, so it is necessary to keep them happy.

Throughout the process, scientific and technical information were used as political ammunition. This is not uncommon in environmental issues (Doremus & Tarlock, 2008; Guston, 2001), but in landscapes like Savage Rapids Lake, some stakeholders, having formed their own sense of how the system worked, refused to believe in problems pointed out by scientists. Science was most useful to Waterwatch and its environmental and economic allies; they argued in terms of the fish and the river. The Rogue fishery had been devastated, and this dam was “the biggest fish-killer in the Rogue.” This phrase quickly became a rallying cry, and environmental groups used it or some version of it consistently (Hunter, 2011; USDOJ BOR, 1995). Dam defenders protested, but the frame stuck – even when people denied that the dam killed fish, listeners could not help but think of dead salmon (*sensu* Lakoff, 2008). As environmentalists saw it, the dam was built to provide irrigation water, which pumps could do with minimal disruption to fish (Hunter, 2011). It made little difference whether the fish were desired for recreation (Moore, 2011), for business (Beyerlin, 2012; Strahan, 2012), or for their environmental value. Removal advocates cast the dam in terms of its harms (great) and its production (marginal, and easily replaceable). The dam removal coalition wielded technical knowledge to make their case. Arguments were in quantities: 114,600 more salmon, \$5 million per year to the regional economy (B. Hunter, 1999). Dam removal would lead to a 22% increase in fish, underlining the dam’s label as a killer (USDOJ BOR, 1995). Throughout the issue, the fish and their well-being were politically unassailable, and no one spoke

against them – note Dennis Becklin’s concerted and somewhat successful effort to improve their passage over the dam.

At the same time, beneath environmentalists’ arguments lay the fact that dams have long been powerful political symbols of environmental degradation. As Bernie Moore of Rogue Flyfishers and the Governor’s Task Force on Savage Rapids Dam said, “I have never been a fan of dams, period” (Moore, 2011). Dave Strahan, the area representative for the Northwest Sportfishing Industries Association (NSIA) and a Grants Pass native, was motivated in part by his lifelong opposition to Savage Rapids and the changes it wrought on his home river (Strahan, 2012). These men were not members of environmental action groups as such – they represented industrial and fishing interests in the removal coalition – but their core values were the same as the environmentalists’. Waterwatch’s campaign slogan was “Free the Rogue!” (Waterwatch of Oregon, 2011). Here was no reference to increased salmon returns or whitewater rafting dollars, but a plea for an imprisoned river that deserved freedom as if it were a person. This sort of construct, redefining liberty to fit a river, is present in many dam removals (American Whitewater, 2014; White Salmon River, 2014).

Oregon law makes river water a publicly owned good, but dam supporters saw the water as their own, to use as they saw fit (Long, 1998x). Dam supporters focused on the dam’s status as private property and its public benefits, while removal advocates focused on the dam’s impacts on public resources like fish (GPID, 1999a; Spickler,

1998). To Bob Hunter, the public was subsidizing GPID with excess water for their inefficient system and by taking some of the costs of GPID's operations onto the Rogue fishery rather than the district paying them itself (GPID, 1992a). Both sides believed that their rights were under attack by their opponents. Essentially, when antagonists talked about the issue, they were not talking about the same thing.

State and national environmental groups joined the Savage Rapids fight as part of a larger effort to remove dams and restore rivers nationwide (Bowman, 2012). Early in the process, Savage Rapids was one of fourteen "damnable dams" listed by the Oregon Natural Resources Council as candidates for removal (Koberstein, 1994). In the 1990s, Interior Secretary Bruce Babbitt publicly expressed the desire to blow up a big dam and made something of a national dam removal tour, sledgehammer in hand (Babbitt, 1998; Bender, 1997). He stopped in the Rogue Valley in 1998 to help take out a small dam in downtown Medford (Barnard, 1998). It was easy for these state and national environmentalists to target SRD as one more instance of a destructive dam, a culmination of the movement to date and a stepping-stone to bigger things. At the same time, Bob Hunter's effective local leadership kept the Savage Rapids coalition from losing focus, allies, or direction despite the coalition's national-level expansion and its eventual embrace of former opponents from GPID (Giguere and James, 2012; Raabe, 2012; Shepard, 2011). In the end, the removal coalition needed everyone.

The scale and impact of the New West phenomenon is debatable, but the fact that such changes occurred in Grants Pass and in GPID is indisputable. When GPID was founded during the First World War, it is unlikely that its patrons would have anticipated a post-agricultural era for the district, or that they would ever have considered a free-flowing salmon stream superior to one that was dammed, despite protestations from the fishing community when SRD was built (Momsen, 2010). But salmon fishing is the sort of amenity that creates the New West. Faced with this new situation, dam savers appealed to local granges (Duewel, 2001a; GPID, 1993e; “Granges gear for dam fight,” 1993), traditionally a potent source of political power in rural America (McConnell, 1969). Dam savers met in grange halls and connected with rotary clubs (GPID, 1993c), but these traditional organizations did not possess the political clout they might once have wielded, and their role was very minor. Indeed, Patagonia, an extremely New West company (Chouinard, 2012), probably exerted more influence than the granges.

At the same time, the dam savers managed to delay the dam removal for a decade, and then to get that removal on very advantageous terms for GPID. It was necessary to bring all stakeholders into a mega-coalition to gain federal funding (as Dan Shepard (2011) said, politicians love to give out money when everyone is shaking hands), and even this required Judge Hogan’s order into mediation and the threat of the ruin of GPID. While the political climate has changed since 2009, and funding has grown ever scarcer, it is likely that building a near-comprehensive array of

stakeholders in the final decision, and caring for their diverse needs and priorities, will remain a necessity for the removal of major dams anywhere.

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Interviews

Many interviewees changed organizations or played several roles during the dam removal process. The affiliation identified here is their most prominent as it related to the dam removal.

<u>Name</u>	<u>Affiliation</u>	<u>Date</u>
Adams, Brady	Oregon Senate	8/31/11
Bakke, Bill	Native Fish Society	2/20/12
Barr, Brian	World Wildlife Fund	8/3/11
Beyerlin, Steve	Oregon Guides and Packers	7/23/12
Bierly, Ken	OWEB	8/12/11
Bowman, Margaret	American Rivers	8/16/12
Buchal, James	Murphy and Buchal LLP	8/11/11
Cauble, Chris	GPID Counsel	8/29/11
Curtis, Jeff	Waterwatch	11/26/12
Funk, Laird	GPID	7/20/12
Giguere, Michelle	Ball Janik	8/20/12
Guillotte, Leon	GPID Board	7/23/12
Greenwood, Don	GPID Board	9/12/11
Hamilton, Bob	BOR	7/25/11
Hamilton, Liz	NSIA	12/15/12
Harper, Craig	Rogue Valley Council of Governments	7/19/11

Hayden, Curtis	Sneak Peak Newspaper	7/18/12
Hunter, Bob	Waterwatch of Oregon	4/19/11, 6/16/11, 7/19/12
	Email 5/5/14	
James, Dan	Ball Janik ³³	8/20/12
Jelderks, John	District Court Judge	4/1/13
Kerr, Andy	Oregon Natural Resources Council	8/24/12
Kirtley, LH	GPID Board	8/24/11
Martin, Jim	ODFW	8/7/12
McMurray, Tom	GPID Board	8/5/11
Moore, Bernie	Rogue Flyfishers	8/24/11
Pagel, Martha	Oregon Water Resources Department	9/6/11
Polsky, Claudia	Earthjustice	9/17/12
Phippen, Ken	National Marine Fisheries Service	8/2/11
Raabe, Peter	American Rivers	7/31/12
Reeves, Meg	Oregon Water Resources Department	11/5/12
Repine, Bob	Oregon House of Representatives	8/8/12
Shepard, Dan	GPID	7/13/11, various, 2012
Sherwood, Mike	Earthjustice	10/17/12
Smith, Kathy	Oregon Water Resources Department	8/26/11
Solliday, Louise	Governor Kitzhaber's Office	9/1/11
Spickler, Marjorie	GPID Board	8/21/11

³³ Giguere and James were interviewed together. Their answers were often mutual, and I cite them as a unit.

Strahan, Dave	NSIA	7/16/12
Tappan, Nancy	GPID Board	8/30/11
Tehan, Michael	NMFS	5/8/13
Tienson, Thane	Copeland, Landye, Bennet, and Wolf, LLP	11/5/12
Van Dyke, Daniel	Oregon Department of Fish and Wildlife	7/30/12
Webster, Julie	GPID	Various 2012

Chapter 6: Dam Removal Effectiveness

Introduction

Dam removal re-establishes natural ecological processes throughout watersheds (Roni 2012), and is an increasingly common river restoration technique. In the United States, some 593 dams have been removed since 1999 compared to only 151 during the 20th century (Pohl 2002; American Rivers (AR) 2013). A disproportionate number of these removals have occurred in the Pacific Coast states of California, Oregon, and Washington; these states contain 4% of the United States' dams but accounted for 11% of its dam removals, 1999-2011 (American Rivers, 2013; US Army Corps of Engineers, 2014). The majority (~90%) of removals in this region were intended to restore native anadromous salmonid populations (*Oncorhynchus* spp.), which have great cultural, ecological, and economic value (Lichatowich 1999; Bernhardt et al. 2005; AR 2013). However, the effectiveness of these removals in restoring anadromous salmonid populations has been an open question, and accounts of dam removals' impacts have largely come in the form of anecdotal observations (Lowry 2003; Bernhardt et al. 2007). Dam removals can be very expensive, costing up to hundreds of millions of dollars (USDOJ NPS, 2014). Most other river restoration projects cost less than \$45,000, although these are typically smaller in physical scale and restorative power (Bernhardt et al. 2005). Given their expense and restorative potential, it is necessary to assess the effectiveness of dam removal in this region.

Historically, anadromous Pacific salmonids were tremendously widespread and abundant. They profoundly influenced the ecology of the Pacific Northwest, contributing millions of kilograms of biomass to terrestrial systems annually and providing nutrients to many taxa (Helfield and Naiman 2001; Gende et al. 2002; Naiman et al. 2002). In the 20th century, anadromous salmonid populations plummeted in the coterminous United States (Nehlsen et al. 1991); 60% of evolutionarily significant units are now federally listed as endangered, threatened, or a species of concern (USDOC NMFS, 2008). Anthropogenic barriers are thought to have caused the extirpation of Pacific salmonids from 44% of their historic habitat (Lichatowich 1999; McClure et al. 2008; Zeug et al. 2010) (Figure 6-1). Such barriers halt or delay access to upstream reaches (Turner et al. 1983; Caudill et al. 2007). Reduced habitat intensifies competition for spawning sites, resulting in the superimposition of redds (nests) on earlier redds and a smaller cohort of juveniles (Ligon et al. 1995). Dams also alter downstream habitat, hamper juvenile migration routes, and transform upstream habitat by creating an impoundment (Ligon et al. 1995; Collier et al. 1996; Bushaw-Newton et al. 2002; Gregory et al. 2002; Backman and Evans 2002).

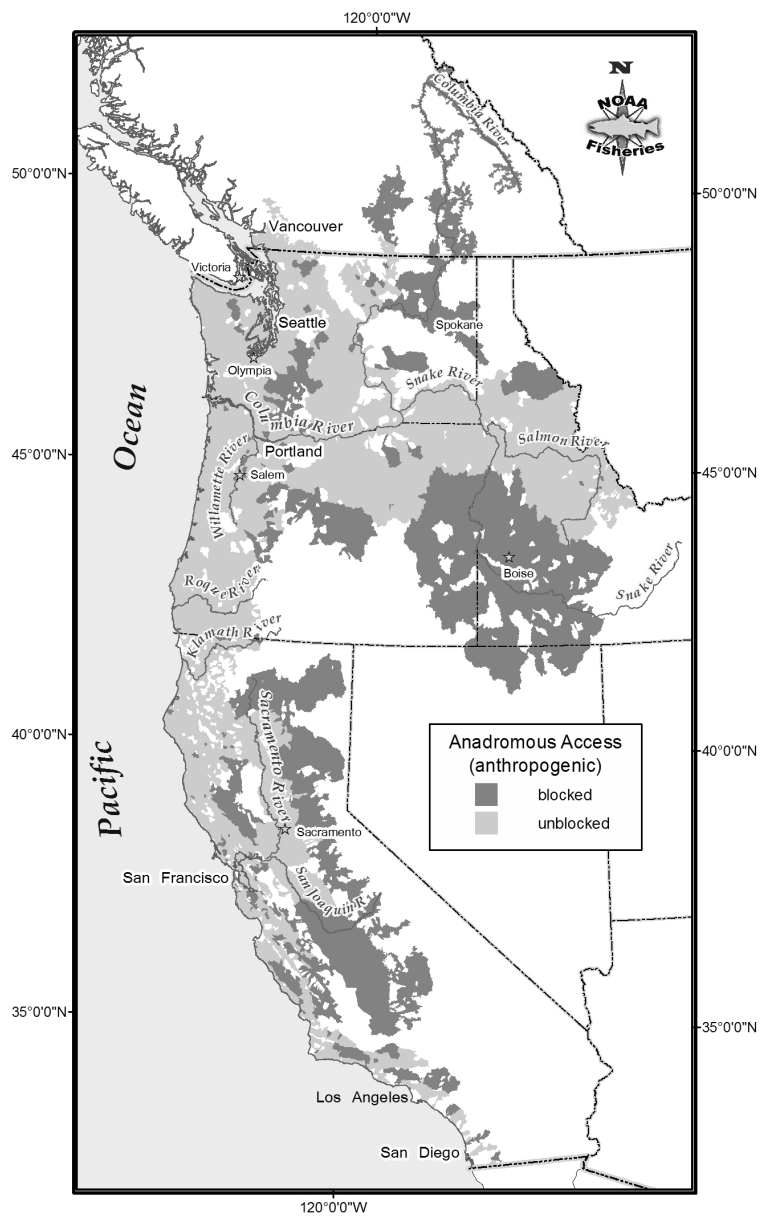


Figure 6-1. Historic and current anadromous salmonid habitat (McClure et al. 2008b)

Dam removal is expected to solve or alleviate many of these problems (Bednarek 2001; Hart et al. 2002). In particular, restorationists remove dams on the assumptions

that salmonid populations are limited by habitat availability (McClure et al. 2008). While a removal reconnects habitat, it does not necessarily indicate that this habitat will be utilized (Hart et al. 2002; Kibler et al. 2011). Moreover, downstream degradation is likely to result in a smaller source population for recolonization after dam removal.

Oncorhynchus responses after other passage changes indicate that they should rapidly recolonize upstream habitat. Salmonids have successfully recolonized upstream reaches after glacial retreat and fishway construction (Milner and Bailey 1989; Kiffney et al. 2009; Anderson 2011; Anderson et al. 2014; Pess et al. 2012). Most dramatically, steelhead trout (*O. mykiss*) returned rapidly to Washington's Toutle River after it was buried by the 1980 eruption of Mt. St. Helens (Leider 1989). But these studies have focused on changes in natural barriers. The removal of a dam presents different challenges for fishes, such as dramatic increases in turbidity (Bushaw-Newton et al. 2002; Stanley & Doyle, 2003; Doyle et al. 2005).

Anthropogenic barrier removals have successfully restored fishes to upstream reaches in a variety of settings (Kanehl et al. 1997; Hart et al. 2002; Burdick and Hightower 2006; Burroughs 2007; Catalano et al. 2007; Gardner et al. 2013), but these efforts have not been uniformly successful (Stanley et al. 2007; Cooper 2011).

In some ways this is not remarkable; ecological restoration is notoriously plagued by a lack of systematic monitoring (Ruiz-Jaen and Aide 2005; Wortley et al. 2012),

particularly in rivers (Roni et al. 2005; Bernhardt et al. 2007; Roni et al. 2008; Lindenmayer and Likens 2010). The literature offers little about anadromous salmonids' recolonization of upstream reaches after dam removal. While there are some surveys of ecological restoration's effectiveness there has been little regional-scale work surveying river restoration success (Bowen et al. 2007; Bay and Sher 2008; Roni et al. 2008). While restorationists often believe that their projects have been successful, they lack evidence beyond unquantifiable objectives, broad descriptions, and inference (Ruckelshaus et al. 2002; Bernhardt et al. 2007). Anecdotes of success in individual rivers are better than nothing, but they are not as useful as quantitative data. Data from individual restoration projects are very valuable (McMillan et al., 2012), but their applicability is limited by site-specific conditions. The objective of this study was to help fill this gap by assessing anadromous salmonids' natural recolonization of upstream habitat after dam removal region-wide.

Methods

Data Collection

I identified dam removals using a national database that lists removals nationwide since 1999 (AR 2013). Information on dam removals previous to 1999 is not widely available, and even basic data (i.e., the height of the dam) are inconsistently recorded. I identified all dam removals targeting anadromous Pacific salmonids in California, Oregon, and Washington. A few (roughly 10%) removals focused on other restoration goals or took place outside of salmonid habitat; in this region, such cases are outliers

and were excluded. The database listed contact people for each dam removal in the database; I contacted these people or their replacements and used snowball sampling (Coleman, 1958) to identify the biologist or river manager in possession of relevant monitoring data from each removal project. These final informants were asked for monitoring data from their dam removal. All informants shared their data. Final informants were asked for presence-absence and quantitative data on salmonids before and after dam removal. Final informants' restoration roles were not uniform. In some cases they had played and were playing an important part in restoration planning and monitoring; in other cases they were simply the person most familiar with reaches upstream of the former dam site.

In many cases, there were no quantitative data. In these cases and in cases where data were unclear I asked final informants what monitoring had been done on the removal, whether there had been any monitoring at all, and what indication they had, if any, of the removal's effects on salmonids' upstream movement. I also asked what the dam removal had cost. I supplemented this information by searching the scholarly and gray literatures and where necessary the popular media to provide such information as the year of a dam removal. I identified and included several dam removals that were not listed in the database in the course of the project.

Ultimately, I found a total of 44 dam removals that targeted the restoration of anadromous Pacific salmonids to upstream habitat (Figure 6-2). Barriers ranged from

very small (one meter) seasonal earthen structures to 38-meter concrete hydroelectric dams, in physical settings from urban streams to remote mountains. Idiosyncratic geography, inconsistent data sets, and natural fluctuations in annual salmonid returns made any rigorous quantitative analysis of these dam removals impossible. For this reason, my assessment is largely qualitative.

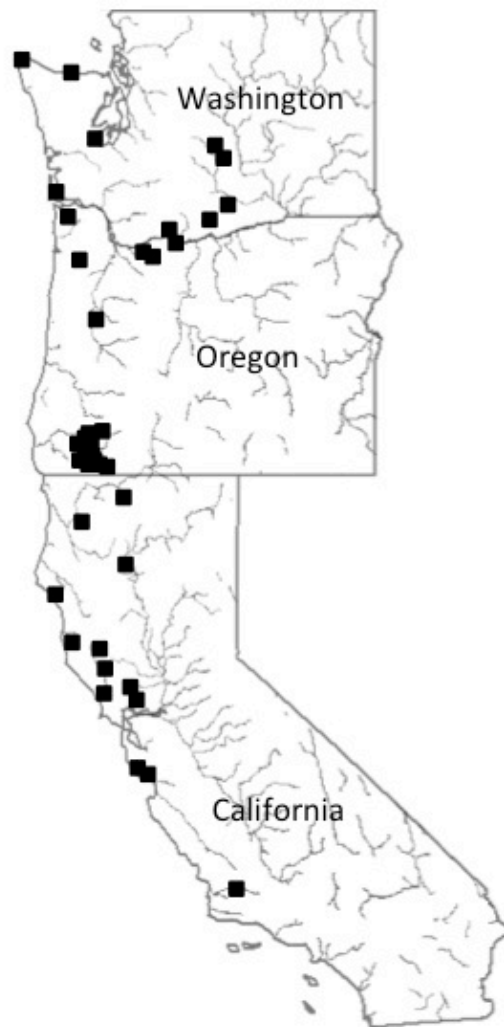


Figure 6-2. Dam Removal Sites in the Pacific coast states 1999-2011

In some cases, more than one barrier was removed as part of a restoration project, or one removal's results strongly interacted with another. I categorized these as one removal. Four cases retained impassable barriers downstream. These removals were undertaken as parts of broader salmonid restoration efforts in the watershed. Their effects will be impossible to assess until downstream barriers are removed; they were excluded from analysis.

Data Analysis

I divided dam removals into two categories for assessment: full barriers, which completely excluded anadromous salmonids from passing above the dam, and partial barriers, which were small (~ 2 meters) enough for fish to leap over, or had working fish ladders. In ambiguous cases, any dam without strong evidence that anadromous salmonids were excluded from upstream reaches was categorized as a partial barrier. I categorized removals in this way because the two types of removal have different immediate goals for upmigrating salmonids. Full barriers eventually cause the extirpation of anadromous fishes from upstream reaches without trap and haul systems or other mitigating measures, so the goal of these removals, none of which had anadromous salmonids in upstream reaches, was recolonization. In partial barrier removals, anadromy is able to persist, so the goal of these removals is increased passage rates and greater upstream abundance. The ultimate goal of both types of removal is larger anadromous salmonid populations, but no dam removal in this region has yielded sufficient long-term data to assess this goal.

I assessed the effect of full barrier removal through the presence or absence of salmonids above the former dam site.³⁴ I considered removals successful if salmonids were present in upstream reaches. Monitoring regimes, time since removal, population size, and habitat were so varied that initial presence or absence was the only uniformly applicable metric for full barriers.

Partial barrier removals were extremely heterogenous, and their diverse data sets and passage conditions allowed no common metric for assessment. I assessed partial barrier removals case-by-case based on what data, particularly baseline data, were available, and discuss them using qualitative data. In some cases, passage was extremely poor (Nelson, 2013). In others, information on passage quality conflicted in different sources.

Three dams were full barriers to some species but were passable for others. I treated these removals as separate cases for each species. Their costs are included among full barriers (see Appendix B) because the primary restoration targets of each of these removals were the species that could not pass above the dam (Reid, 2013; Bauer, 2013; Jeanes, Morello, & Appy, 2004).

³⁴ The Little Sandy Dam on the Little Sandy River, Oregon, dewatered downstream reaches, diverting all water away from the streambed. This resulted in the exclusion of anadromous salmonids from upstream reaches except during extremely high flow events. There was no continuous upstream salmonid population, making presence or absence an appropriate assessment metric.

Results

Full barriers

Anadromous salmonids were present above former dam sites in 56% of full barrier removals (Figure 6-3). Cases where salmonids were absent or where results were ambiguous bear some individual description (below). There was no dominant or typical monitoring regime for full barrier removals. Monitoring approaches varied from structured, consistently scheduled monitoring to occasional casual observation. Monitoring was highly funding-dependent.

- In Horse Creek, CA, steelhead are absent. The site has been monitored once, at a time when the watershed had been heavily impacted by a fire (Stoecker, 2013).
- In Dutch Bill Creek, CA, coho salmon (*O. kisutch*) were absent but coho were nearly extirpated from the entire system before removal – years passed with no coho returns at all (Bauer, 2013).
- East Mill Creek, CA, has been monitored multiple times annually, and no steelhead have returned to upstream reaches (Cenci, 2013). Upstream habitat quality in upstream reaches is poor (Cenci 2013).
- In Wa’atch Creek, WA, coho were present and steelhead and cutthroat trout were absent. Trout species have not been monitored (Ritchie & Shelberg, 2010).
- In Whites Gulch, CA, two small impassable dams were removed and steelhead were observed above the lower dam site, but not the upper one (Cressey, 2013). Upstream

habitat in Whites Gulch has been surveyed once, at a time when flow levels made it unlikely to find steelhead (Cressey, 2013).

- In Goldsborough Creek, WA, chum salmon (*O. keta*) were present upstream of the dam site but cutthroat trout were not monitored (Jeanes et al. 2003).

- In Waterman Creek, CA, and Maple Gulch, OR, results were ambiguous because juvenile *O. mykiss* were observed in upstream reaches, but the information available made it impossible to conclusively establish whether these fish were steelhead or resident rainbow trout that had been present prior to dam removal (Frahm, 2012; Brewitt, personal observation).

- In Headquarters Creek, WA, chum eggs were planted upstream of the dam site. This, combined with a lack of monitoring, confounds attempts to assess the effect of the dam removal (Fernandez, 2013).

Full barrier removals had an aggregate cost of \$382 million and a median cost of \$340,000. One removal had no recorded cost. The use of these funds varied from case to case, and in many cases included pre- and post-removal restoration work and ancillary issues, such as hatchery construction.

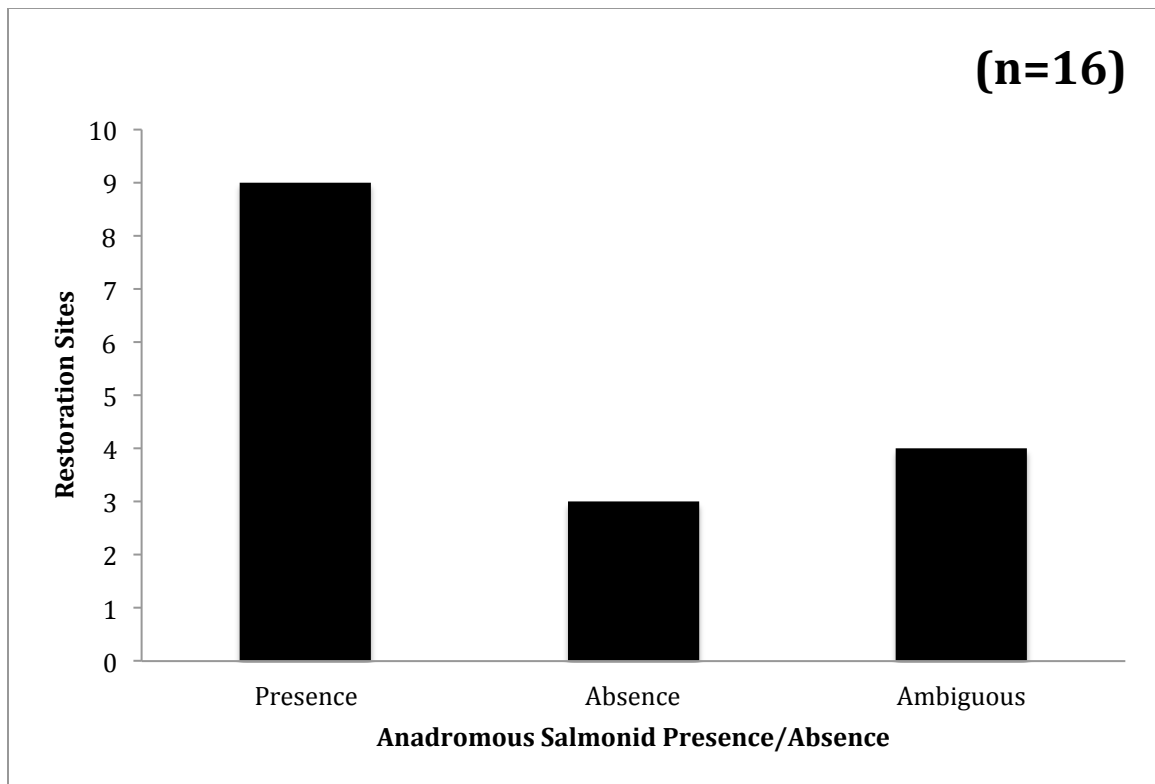


Figure 6-3. Anadromous salmonid presence/absence in upstream reaches after full barrier removal

Partial barriers

Two partial barrier removals have quantitative evidence of increased salmonid passage upstream of the dam site: the McCormick-Saeltzer removal (Clear Creek, CA), and the Goldsborough Creek Dam (Goldsborough Creek, WA) (Figure 6-4). Before the removal of the McCormick-Saeltzer barrier, 1% of spring-run Chinook salmon (*O. tshawytscha*) passed upstream; 70% passed upstream afterwards (Brown, n.d.; Giovannetti, 2013). After the Goldsborough Creek removal, coho smolts have

increased by an order of magnitude – this is attributed to the 2001 dam removal (Konovsky, 2011).

Anecdotal or observational evidence that upmigrating salmonids benefited from dam removal varied greatly. Such evidence included upstream arrivals weeks earlier than had been seen in the past (Tuss, 2013; Gerstenberger, 2013), spawning activity in the former reservoir (Tuss, 2013), returning migrants appearing further upstream than previously seen, and perceived greater abundances in upstream reaches (Wheeler, 2012; Acomb, 2012; Gerstenberger 2013; Nelson, 2013; Farrand, 2013), and bright, fitter-appearing fish brooding over redds (Arendt, 2013)

Two partial barrier removals, from Trout and Satus Creeks, WA, have received quantitative multi-year monitoring but data are insufficient to indicate success or failure at this point (Rawding, 2011; Resseguie, 2013). Several of the removals noted above have similar ongoing monitoring efforts.

Twelve cases lacked sufficient information for even extremely qualitative assessment. Monitoring regimes varied greatly, and many cases lacked baseline monitoring. In some cases the river was monitored, but the dam removal site was not. In the majority of partial barrier removals, monitoring has been insufficient to assess the success of the project – either there were no baseline data for upstream passage, or post-removal monitoring was insufficient.

The aggregate cost of partial barrier removals was \$86.8 million. The median cost was \$585,000. Three cases did not have a recorded cost.

For specific details on each dam removal, please see Appendix B.

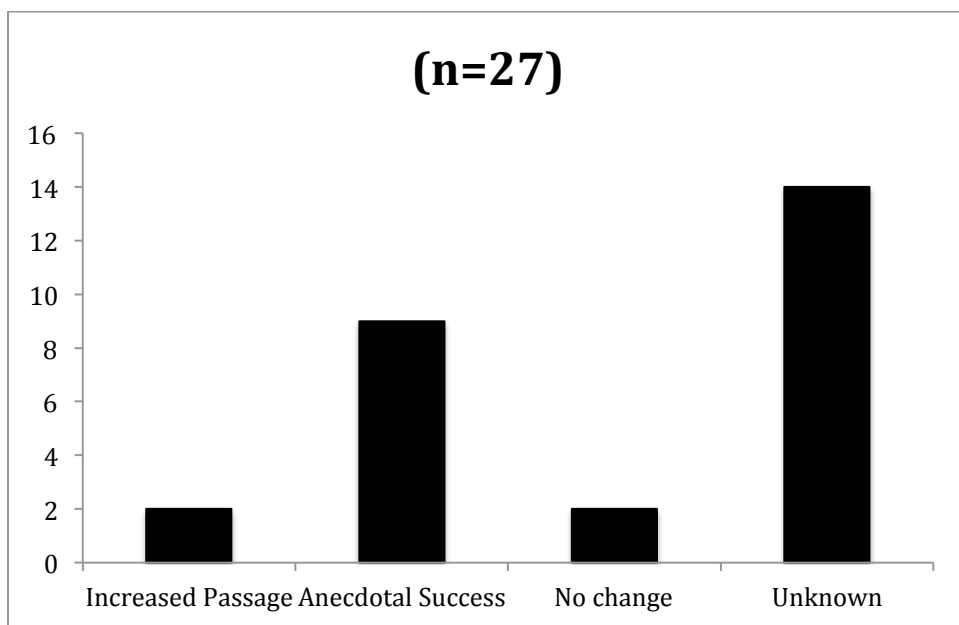


Figure 6-4. Anadromous salmonid passage to upstream reaches after partial barrier removal.

Discussion

Well-monitored dam removals have achieved recolonization or increased passage in most cases. Even in cases where removal has been shown not to result in upstream recolonization or increased abundances, the possibility of later upstream expansion from source populations remains open. Future restorationists should implement

consistent pre- and post-removal monitoring regimes that are appropriate to local conditions and species and are applicable to future restoration projects in comparable systems.

Full Barriers

Full barrier removals are more likely to be monitored than partial barrier removals. This may be because the relatively simple nature of presence/absence monitoring makes basic assessment easier. However, some streams with multiple species were only monitored for target species. Only one consistently monitored full barrier removal did not see its target species return – it is possible that consistent monitoring would reveal successful recolonization in 15/16 full barrier removals.

Several ambiguous results are due to the complex life cycle of *O. mykiss*. Removals target the restoration of steelhead, the anadromous form, but the only way for most monitors to distinguish steelhead from resident rainbow trout is by observing returning adults; steelhead are much larger. It is possible to identify the life histories of juveniles' parents by analyzing their otoliths (Berejikian, Campbell, & Moore, 2013), but such analysis was not performed in these cases and may not be broadly available for future projects. Accurate *O. mykiss* identification is particularly important in Southern California, where steelhead are the only anadromous salmonid.

Partial Barriers

Partial barrier removals are more numerous and inherently more complicated to monitor. It should be noted that even in the two quantifiably successful cases, there were other restoration actions that likely contributed to strengthened salmon runs (Jeanes, 2003; Giovannetti, 2013). The greatest challenge to assessing partial barrier removals is a lack of baseline data. Many cases had no data on the quality of upstream passage, rendering post-removal monitoring far less meaningful. On Marmot, Powerdale, and Gold Ray dams, there were baseline data from counting stations that were attached to the dams. Without the counting stations, these data set can only be inexactly continued post-removal. The Calapooia River has 30 years of surveys and a reference site in the main stem of the Willamette River, but assessments of the 2007 Brownsville Dam removal are complicated by the 2011 removals of downstream dams (Farrand 2013). It is likely that monitoring on this system will yield robust quantitative results in the future. Other restoration activities and anthropogenic and natural pressures such as urbanization or ocean conditions complicate all cases. Restorationists removing partial barriers in the future must establish pre-removal passage rates or upstream/downstream abundances to assess the effectiveness of these projects.

Monitoring

Dam removal monitoring has been erratic and inconsistent, representing a significant failure both for science and for the massive funds expended on these projects. In 5/16

cases (31%) of full barrier removal and in 24/27 (89%) of partial barrier removals, monitoring gaps prevented assessment of dam removal's effects for at least some salmonid runs on anything more than an anecdotal level. In these cases, it will never be impossible to determine if restorationists' desired target of increased population size and passage rate will occur. Where monitoring has occurred, data has rarely been published in the peer-reviewed literature. This confounds attempts to assess the effectiveness of dam removals and establish the value of massive investments; it also complicates the future of river restoration in the region. Along with implementing effective monitoring regimes of all anadromous species, future restoration projects should make monitoring data publically available to inform future projects.

It is necessary to identify and communicate the results of dam removal for social as well as ecological reasons. Dam removal is challenged by popular skepticism and concerns over costs (Buchal, 1998; Crane, 2011). The success of ecological restoration is often judged through public opinion (Bernhardt et al. 2007). Consistent monitoring is the only way to produce strong publically interpretable results indicating whether projects have met restoration goals. This is particularly true for partial barrier removal, where salmonids are visible upstream and especially while ascending fish ladders, creating the perception that the dam has no effect on fish passage (McMurray, 2011). Strong monitoring regimes are important for these projects socially as well as scientifically.

Dam removals should receive short- and long-term project-specific monitoring. Returning salmonid populations to peak post-dam levels may take 20-25 years (G. Pess, 2009; USDOJ NPS, 1995), but management and restoration decisions are made in the short term (Holl and Howarth 2000). For this reason, it is necessary to begin to produce data quickly. It would be preferable for each removal to receive broad interdisciplinary monitoring, but most removals will not receive such attention. For example, Goldsborough Creek, WA enjoys unusually thorough monitoring of salmon species but steelhead and cutthroat trout, species of lesser restoration concern, are not monitored (Peters, 2013).

Funding is perhaps the most important challenge for monitoring. Long-term monitoring should be structured into dam removal funding to ensure that funds are not wasted. Staffing is another challenge; some removals had no-one overseeing, or even aware of, the project site. Barring funding redistribution or changes in staffing patterns, dam removals must be monitored using short-term metrics that can be broadly applied and clearly communicated. Streams should receive annual reach-by-reach surveys to build up baseline data. This is being done successfully in places like the Salmon River, CA, where restorationists run a large annual volunteer survey of Chinook and steelhead. The count has been performed since the early 1990s, providing a steady yardstick for the larger Klamath system (Hotaling, 2013). While the use of volunteers can lead to issues with observer error, such efforts are useful to discern the effects of changes to the system such as restoration projects.

The before-after-control-impact (BACI) approach offers an effective way to solve many of the problems listed above for partial barrier removals. Gardner and colleagues provide an exemplary study from Sedgeunkedunk Stream, Maine (Gardner et al., 2013). They surveyed the stream above and below the barriers, quantified fish assemblages for two years before removal, and found increased relative fish abundance above the dam (and decreased relative abundance below the dam) after removal. Such a study could be replicated in comparable streams nationwide, though it would not be appropriate for all sites. This approach has the advantages of incorporating baselines and taking a relatively short time. The focus on relative abundances above and below the dam site insulates the study, to some extent, from outside population-level effects such as ocean conditions. A BACI is in process for the removal in Trout Creek, WA (Rawding, 2011), but not for other dam removals. Many future dam removal projects would benefit from this approach.

There will be many more dam removals in the near future. In 2012, twelve more dams were removed in California, Oregon, and Washington (American Rivers, 2013). There are an estimated 2.5 million dams in the United States, 85% of which will be past their useful lives by 2020 (NRC 1992; Doyle and Havlick 2009). Many rivers in the northern hemisphere contain both dams and anadromous salmonids (Lejon & Nilsson, 2009). It will be challenging to manage dams and restore rivers effectively without basing restoration plans on empirical data. Given funding limitations and

logistical challenges, a new commitment to dam removal monitoring is needed. This would be a trifling expenditure compared to the major investments stakeholders make in salmonid restoration and dam removal. Dam removal remains a promising option for salmonid restoration in many cases, but as it becomes more established it would benefit all stakeholders to establish whether and how this promise works in application.

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Interviews

Many interviewees changed organizations or played several roles over time. The affiliation identified here is their most prominent as it related to the dam removal.

<u>Name</u>	<u>Affiliation</u>	<u>Date</u>
Acomb, Derek	CDFG	5/10/12
Arendt, Kathryn	USDA Forest Service	10/31/13
Bauer, Nick	UC Cooperative Extension	3/4/13
Cenci, Kate	Mattole Salmon Group	3/1/13
Cressey, Lyra	Salmon River Restoration Council	2/27/13
Farrand, Alex	ODFW	2/16/13
Fernandez, Marie	USDOJ FWS	2/22/13
Frahm, Tim	San Mateo County Farm Bureau	5/25/12
Gerstenberger, Ryan	Confederated Tribe of Warm Springs	11/6/13
Hotaling, Tom	Salmon River Restoration Council	6/10/13
McMurray, Tom	Grants Pass Irrigation District	8/5/11
Nelson, Jen	WDFW	3/1/13
Peters, Joseph	Squaxin Island Tribe	11/6/13
Reid, Ian	USDA Forest Service	2/26/13
Resseguie, Tim	Yakama Nation	2/26/13
Stoecker, Matt	Stoecker Ecological	2/21/13
Tuss, Craig	Rogue Valley Council of Governments	2/21/13

Chapter 7: Conclusion

Dam Removal Flows On

Six weeks after the Elwha removal festivities, contractors blew a hole in the foot of 125-foot Condit Dam, and the White Salmon River thundered through. The Condit removal, like the ones I address in this work, had been a subject of controversy. It met with some resistance from local people who wanted to keep their lake, and from Pacificorp, the dam owner (Blumm & Erickson, 2012, Hamilton 2012, O'Keefe 2011). The technical challenges were also daunting, but the location of the dam, only two miles above the Columbia River, allowed managers to secure and protect the river's salmon during the blast, and release the silt with confidence that the Columbia would soon consume it. The result was a swift and spectacular breach.

Condit's impoundment drained rapidly; by the end of the day, the lake-like environment was a river again. The released White Salmon swept west in the Columbia, churned through Bonneville Dam, joined the waters of the Sandy coming up from Oregon, and entered the Pacific Ocean at Astoria. The next year, steelhead swam into the upper reaches of the White Salmon for the first time in many decades.

The Condit removal, like all dam removals, was a unique situation with its own circumstances and stakeholders, but the nationwide phenomenon of dam removal has continued to grow. In 2012 and 2013, a total of 107 dams were removed from the rivers of the United States – more than in the entire decade of the 1990s (American

Rivers, 2013, 2014a; Pohl, 2002). Roughly 1,150 dams have been removed in total (Figure 7-1). There will be a growing number of removals in the future, as dam removal becomes an increasingly routine option for resource managers and river stakeholders and dams continue to age beyond their lifespan. An ODFW biologist has referred to the Rogue basin, with its many small dams on tributaries, as a “target-rich environment” (Van Dyke 2012). But with an estimated 2.1 million dams over 50 years old by 2020 (Doyle, Harbor, & Stanley, 2003; National Research Council, 1992), for dam removal advocates nearly any basin in the country presents a target-rich environment.

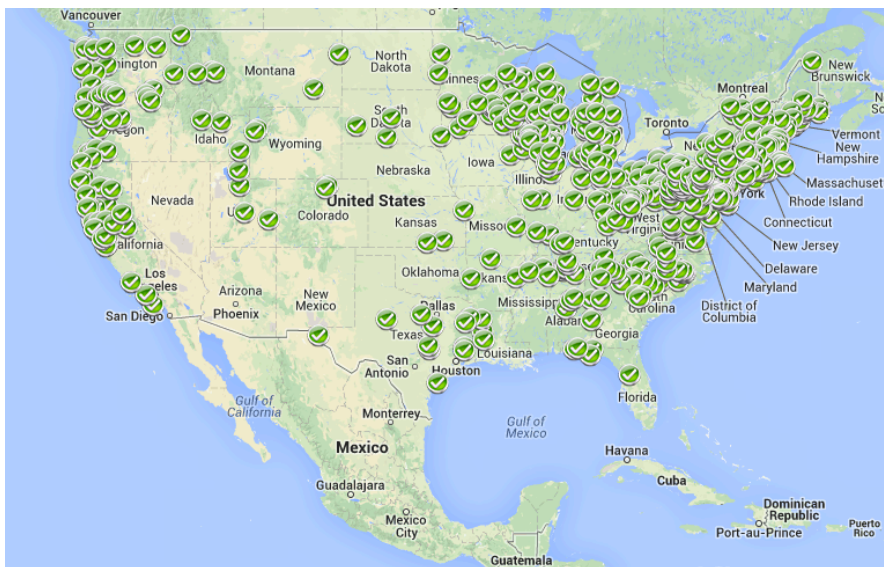


Figure 7- 1. American dam removals 1936-2013 (American Rivers, 2014b)

In each case, stakeholders insisted that *this* removal was a one-off, and that what was happening in the Sandy, Rogue, or Elwha had no bearing on the Klamath or the

Snake or anywhere else. In part, this was necessary to satisfy political concerns from doubting members of Congress, but taking the removals case by case, they were correct. Portland General Electric's other hydro projects were more valuable and durable than the Bull Run Rube Goldberg Machine, and Savage Rapids was the only dam the Grants Pass Irrigation District ran. The Elwha combination of a river in a national park, giant salmon, and a native tribe at the river mouth is not to be found anywhere else in the contiguous United States. Dam removal is not a political storm that blows straight from the Elwha to the Snake. But while each dam removal's unique circumstances did indeed matter, the experience, learning, and political comfort created by one dam removal could not help but facilitate others. Soon after the Savage Rapids removal decision, three other major dams came down on the Rogue; some attributed this to the Savage Rapids experience (Hunter, 2011; Tehan, 2013). By contrast, the forces opposing dam removal on rivers like the Klamath may have learned from the experience of the nearby Rogue as well (Strahan, 2012). The political factors that shaped the course of each case are present in many removals, and indeed in many restoration projects of all kinds.

Understanding dam removals better will enhance understandings of future situations for political actors as well as political scholars. A repetition of the Savage Rapids and Elwha experiences, with their prolonged controversy, ever-mounting expense, and political animus, would be undesirable for anyone. River stakeholders have learnt many lessons from the experiences of the past 30 years, and some of the more basic

political barriers – disbelief that anyone would seriously suggest dam removal, or doubt that it would be possible to take down a dam – are unlikely to be questions in the future. In the decades to come, dam removal projects are likely to hinge on how actors approach the broader political challenges posed by the ungainly policy subsystem governing dams, fish and rivers.³⁵ The experience of these three removals bears out Lowry's (2003) work on political receptivity, as success depended on creating and expanding the factors (cooperation, acceptance of science, cost clarity) that make a political situation receptive to removal.

To a large extent, dam removal is the most recent expression of the evolving role of nature in American society and politics. Over the lifespans of the dams treated here, land and water use were rethought in every landscape and industry. The environmental movement has long resisted the development of forests, deserts, and shorelines, successfully redefining the value of wilderness, nature, and wildlife across the United States (Nash, 2001; Reisner, 1993). The environment has gained political weight and legal standing, and there are legions of advocates dedicated to representing it. Dams were prominent in the growth of the environmental movement, and nationwide, policies regulating fisheries and water allocation have trended towards the environmental perspective (Hundley, 2001; Whitworth, 2001). These broader social changes create the conditions and the demand for dam removal.

³⁵ Of course, technical challenges will always be important in the removals of major dams. But these challenges are not political (though they are sometimes politicized), and in this sense they are no different than technical challenges of any large construction project.

Loomis (1996) found that the aggregate benefit of the Elwha dam removal to households across the United States, most of which will never use the river in any tangible way, was between \$3 billion and \$6 billion.

In a closely related transition, Americans have increasingly treated the geography of the West as valuable for beauty and recreation, not necessarily resource extraction – as Hansen and colleagues (2002) note, some analyses indicate that natural amenities are the region’s greatest economic assets. The rise of the “New West” has altered politics, culture, and economics in many communities, including in each watershed I discuss here. The presence of Olympic National Park, Wild and Scenic designation for the Rogue, streams of amenity-driven retirees to Southern Oregon and the Olympic Peninsula (Peninsula Daily News Staff, 1987), and Sandy’s importance as a fishing destination for Portlanders all altered the political calculus on these rivers. They did this through changing the constituencies that lived and voted in these landscapes, but also by changing power in the economy. Whitewater organizations mattered in western rivers by the 1990s, and Patagonia, an apparel company founded by a famous rock climber, was (and still is) active in funding and publicizing dam removal efforts, including on the Elwha and Rogue. At the same time, traditional economies, Wilkinson’s “lords of yesterday” (1992), were crumbling along with the concrete in the dams: by 1990 agriculture in Grants Pass was almost gone, and timber

in the Olympic Peninsula was challenged by new laws and new values.³⁶ While this transition was not clear-cut or immediate – there have always been lovers of Western scenery, and resource extraction remains a crucial activity in much of the West – it was unquestionably happening in each of these cases. Burke (2001) puts it succinctly: “...times were changing. Business-as-usual ran headlong into powerful new environmental laws and the ghosts of millions of vanished salmon.”

Framing

On the Rogue, the Sandy, and the Elwha, stakeholders looked at the dam, the reservoir, and the river, and saw different things. This is true of nearly any land-based environmental issue; if stakeholders understood their landscapes and resources in the same way, there would be minimal conflict. Dam removal is different from most other issues because the environmentalists, fishers, and tribe did not see a threatened but intact landscape in need of preservation; rather, they saw a degraded watershed or fishery in need of active resuscitation. This was beyond most of their experience. As Jim Baker of Friends of the Earth said in 1990, “For all our hard work just to keep the status quo, we have never successfully struck a blow for nature, and forced the removal of a dam that developers never should have built in the first place” (Baker, 1990). Dam removal advocates were on a rescue mission.

³⁶ Sandy, too, had been a timber town, but by the late 1990s that history was remote enough that it was not a significant factor in the Bull Run debate.

This frame was relatively simple and durable – the enormous runs of fish that once characterized the Pacific Northwest were well within living memory, and the rivers were clearly emptier in the 1990s than in the 1920s. These fish were charismatic, economically relevant, ecologically powerful, and strongly representative of the region and its rivers. A more effective policy image than the returning salmon struggling against a dam that barred them from their ancestral streams could scarcely be invented. Anglers, native tribes, and environmentalists had always been against the dams and their impacts on rivers. Once the American polis evolved toward environmentalism and a more receptive attitude to dam removal, these stakeholders were able to gain power and begin to create a Rochonian critical community in the Northwest. Whatever an individual organization's reason for supporting the removal effort – restoring wilderness, improving fishing, carrying out their regulatory and management responsibilities – their frame of the dams as harmful and of the river as a natural system that should be allowed to fulfill its natural role held firm. The environmentalists' rhetoric about freeing the river, and the tribe's perspective of trying to return the salmon-driven prosperity that had been stolen from them were different from the agencies' or the fishing groups' less emotional frames, but at bottom they essentially wanted the same thing when they looked at the dam: a free-flowing river and a restored ecosystem.

In each case, dam removal was decided upon early in the process – 1999 for Marmot Dam, 1992 for the Elwha dams, 1994 for Savage Rapids. Heightened conflict came

afterwards, in response to the dam removal decision, and the most important frames in the dam removal debate became those through which anti-removal stakeholders viewed the situation. These advocates saw and discussed dams' function and dam removal through two frames – economics and culture. Related to these was the role of science in determining the ecological and engineering aspects of dam removal.

Economics

It would be natural to expect the dams' owners to view their dam as an economic machine and to wish to keep them in order to profit from their continued operation. And indeed, at the beginning of each process, PGE, GPID, and Crown Zellerbach all intended to retain their dams and the power or irrigation water they provided. But none of these dams were valuable economic producers. If they had been, then the Bull Run and Elwha/Glines Canyon projects would likely have survived the FERC licensing process. A GPID that made full and productive use of its water right would have nullified the political lever that environmental groups pulled to start the Savage Rapids removal process. A productive dam is unlikely to be removed – its owners can pay to limit and mitigate its environmental impacts, and political decision-makers will be less likely to support its removal. As Brian Barr (2011) noted, the big dams on the Columbia are productive enough to pay for their state-of-the-art fish passage technology. For the dam removals addressed in this work, mitigation and continued operation became expensive and after various efforts to find an affordable way out, the dam owner moved to join (or, in PGE's case, form) the pro-removal coalition.

This happened partly because of the decrepit nature of dams built in the early decades of the 20th century, and partly because the policies America uses to guide and regulate water use have effectively made dams less profitable. It is likely that low productivity is a necessary condition for dam removal.³⁷

In the Savage Rapids and Elwha cases, the carrot of federal money to replace the dams' function joined the stick of legal action and hastened the end of the companies' resistance. Such external funding does not necessarily have to come from the federal government, but that is the most broadly acceptable source. In this sense, Savage Rapids and Elwha set a challenging precedent – it is unlikely that Congress will pass a law for every expensive dam removal. Federal funding was crucial in resolving the situation, though. Market value is a relatively simple frame through which to view a dam: if the dam becomes expensive and removal becomes cheap or free, then the owner's core value – profit – will compel it to support dam removal. Economic value is inherently negotiable, and it was successfully negotiated toward removal in all three cases.

The other economic issue tied directly to the dams' function was employment. Some dam removal opponents framed the Savage Rapids and Elwha removals as threatening the existence of the paper mill or GPID. This was never likely to occur, as a dam removal that threw people out of work would be a political non-starter,

³⁷ An exception would be a productive dam that posed some sort of imminent safety risk.

unlikely to find support from lawmakers at any level. Removal proponents knew this, and they framed dam removal as a “win-win” scenario that would protect the local economy as well as restore the environment. In fact, they argued, dam removal would boost the local job market in both the short term (through construction money) and the long term (through larger returns of fish, followed by fly-fishing tourists, though these benefits were somewhat diffuse and uncertain). The phrase “win-win” was used in each case, disrupting the anti-environmentalist formulation of “fish vs. jobs” or “owls vs. jobs.” It is notable that actually operating each dam only demanded a handful of employees, and their jobs were a non-issue. After dam removal, PGE and GPID continued to operate much as they had before, and a new supply of cheap power to the Port Angeles mill kept jobs safe there.

The nature of restoration also meant that no great economic boon was being lost with dam removal. For a timber community, an uncut forest represents (among other things) a big pile of money, waiting to be made, and a logging moratorium locks it away. With dam removal, there was only the need to maintain the economic status quo through replacing the dams’ part of the economy, which was relatively small and simple.

Managing the dam removals’ ancillary economic effects was more difficult. Marmot Dam was not built in order to keep hatchery fish downstream and support the local angling economy, but this became one of the most challenging issues stakeholders

faced. Its repercussions, especially for fly-fishing, are not fully resolved to this day. The Elwha dams' role as settling basins that created clearer water for Port Angeles, and the silt that would be released during removal, posed major challenges; the most expensive part of the Elwha restoration project, \$79 million, was building two new water treatment facilities for Port Angeles (USDOJ NPS, 2014). Without them, the town of Port Angeles would not have accepted any dam removal plan. On Savage Rapids, some of the early resistance to dam removal came from small business owners who relied on recreation at Savage Rapids Lake. These economic interests had very little formal standing – fishing guides and RV park owners could not reasonably expect a privately owned dam to guarantee stable conditions forever – but their grievances attracted sympathy and served to extend, expand, and inflame the debate.

Culture

The most politically important framing action by removal opponents was to situate the dam and the reservoir in the community's social and recreational landscape. This was entirely a matter of cultural preference and perspective. When people who lived near Roslyn or Savage Rapids Lakes, or Lake Aldwell, looked at the reservoir, they saw a natural feature that had enriched summer afternoons all their lives. The names of anti-removal pressure groups demonstrate this perspective: the Keeping Water in the Lake Committee, Rescue Elwha Area Lakes, the Association to Save Savage Rapids Dams and Lake. In this, again, the public had no formal standing – people are

not entitled to views of an impoundment any more than they are to views of grain siloes or train stations – but the impoundments’ similarity to natural lakes made them feel like a common-pool resource. Moreover, as Bob Hunter (2011) pointed out, a dam’s operational life and structural lives are not the same thing, and a dam can stand and appear the same as ever while no longer functioning effectively – a distinction lost on people whose relationship to the dam was separate from its operation. Many people with no direct connection to the dam or the river saw the dam and the lake as part of their desired landscape, broadening and strengthening the anti-removal coalition significantly. As Sarakinos and Johnson (2003) found in Wisconsin, and Lejon and Nilsson (2009) found in Sweden, people also feared that their lake would turn into an ugly mud flat. This fear was somewhat irrational – landscapes are dynamic and mud flats grow into forests – but the image of a mucky wasteland served to intensify locals’ defense of their familiar lake.

This frame of the impoundment as a beautiful lake that everyone enjoyed was emotionally powerful and very difficult to combat. Dam removal advocates found themselves opposing “little children” and “the images that tug at our hearts.” This situation is likely replicated region-wide: there are over a million artificial lakes and ponds in the American West (Whitworth, 2001), and the most common primary purpose for American dams is recreation (US Army Corps of Engineers, 2014). It is clear that there is an extremely widespread desire for flat-water recreation and

scenery, which can be rare and difficult to access. If people in Grants Pass wish to water-ski now, they must drive an hour to Lost Creek Lake (Duewel, 2008).

Beyond active recreation, lake-like scenery (and in Grants Pass, the verdant irrigated landscape as well) represented community members' sense of what their environment should look like. This clashed directly with removal advocates' belief in restoration. To lake defenders, dam removal would blight the landscape and return it to the bad old days of "the brown desert" (Greenwood, 1994). Just as removal advocates believed that they were rescuing the river from the dam, dam advocates believed that the dam had redeemed the wild river. As Doremus and Tarlock (2008, p. 184) note of similar rural communities in the nearby Klamath basin, people "can be just as emotionally attached to the water filling an arrow-straight irrigation ditch as to water swiftly flowing from mountains to sea." The dams were seen as guarantors of progress and prosperity by people who had lived and prospered through Marc Reisner's Go-Go Years and retained the perspectives of their pioneering ancestors. These were Sabatier and Jenkins-Smith's core values, essential parts of stakeholders' worldviews, and not subject to persuasion. In each case, the dams and their surrounding infrastructure were lauded as historical monuments, testimony to the labor and ingenuity of the people who built them in an earlier America (Long, 1997; Smith, 2012; USDOJ NPS, 1995).

From this clash in worldviews sprang conspiracy theories. On the Rogue, some could

not believe that the dam removal issue was really about the river and the fish. It seemed more plausible that the United Nations or even the British royal family (Spickler 2011) were engineering the dam removal. Fear of control by the UN was present on the Olympic Peninsula as well (Hewett 2011). Dam removals were seen as part of a campaign to return the landscape to wilderness by a pagan earth religion (Chastain, 1995). Even in the more politically amicable Sandy basin, there were concerns about control by the city of Portland. This sort of suspicion fit into a larger anti-environmental narrative that has been present in the rural west for many decades and has grown increasingly strong on the American Right (Layzer, 2012). There was very little basis for any of these conspiracy theories, but they were (and are) earnestly held and passionately expressed, and they represented a major challenge for removal advocates, one that could not be overcome through rational argument and would likely be aggravated by financial compensation – the conservative conspiracy narrative includes deep-pocketed environmentalist backers and reckless government spending. Such a “devil shift,” wherein opponents are harshly vilified and their power exaggerated, is common in coalition politics (Sabatier, Hunter, & McLaughlin, 1987). These conspiracies, which had dam advocates contending with wicked, immensely powerful opponents, created something of a hero complex: Dennis Becklin compared himself to the famous college student who stood in the way of tanks in Tiananmen Square (Barnard, 1998). Anti-removal groups found themselves in the traditional political role of environmentalists – scrappy underdogs trying to save beloved landscapes from destruction.

The experience of the Owl Wars, present in each case, reshaped environmental politics in the Northwest, and perhaps in the United States, for the foreseeable future. The spotted owl hovers over landscape and species questions as the symbol of environmental conflict.³⁸ The owl had two primary effects on these dam removals. The first was to draw and harden the lines of conflict. Local communities had seen the suffering of the Owl Wars, which made some people hate and fear environmentalists and resource agencies almost regardless of the specifics of the issue. The experience of the owl lent credence to conspiracy theories and fueled the popular uprisings that halted the progress of dam removal. At the same time, though, the fearsome memory of the Owl Wars likely moved stakeholders toward a negotiated solution. As many stakeholders noted, a court case is a blunt instrument, one that creates defeat and resentment. Politicians' help was more likely to be offered to avoid this sort of conflict. Al Swift, John Kitzhaber, and Slade Gorton all worked to ensure a negotiated solution and include citizen groups rather than risk a devastating court order. The Savage Rapids stakeholders were ordered into mediation by a federal judge. No legislator wished to be responsible for the next Spotted Owl.

The fish were a more powerful political force than the owl, though, and one frame embraced by nearly everyone was that restoring the fishery was a crucial

³⁸ Even in 2013, the spotted owl was prominently mentioned in the Oscar-nominated movie *The Wolf of Wall Street*, a film mostly devoted to the hedonistic excesses of white-collar criminals.

responsibility. The terms of the debate were such that a stakeholder who publically admitted that they did not care if the fish lived or died would lose much political influence. For the dam removal groups, of course, restoration was a core value, their reason for being involved in the issue at all – one with which their opponents publically and vociferously agreed. On the Sandy, the universal desire for a stronger fishery was a given, and the prospect of healthier salmon populations convinced skeptical anglers to agree to removal despite the management problems they knew would come later. On the Rogue and Elwha, removal opponents asserted that they, not the environmental groups, were the ones who wanted the best for the fish – they just felt that it was best to achieve this goal with the dams in place. GPID's Dennis Becklin board, the Elwha paper companies, and REAL all created and promoted their own plans for getting salmon past the dam. It was common to blame declining fish runs not on the dam, but on foreign fishing fleets, marine mammals, and in some cases, gillnets. These claims were reasonable enough – there is no doubt that fishing, on the open sea or in the river, contributes to declines in salmon populations, or that sea lions eat fish – but were not well documented and therefore a difficult frame for advocates to defend. Having committed themselves to defending the salmon, anti-removal advocates were reduced to arguing against the work of the many scientists who had concluded that removal was necessary for restoration, a battle they were unlikely to win.

Science

The root problem of clashing values made science into a source of controversy. Dam removal advocates found science to be a powerful weapon, as their goals were supported by and founded upon the findings of agency, tribal, and academic scientists. Scientific support for dam removal was consciously countered with consultants hired by the GPID and the various Elwha dam owners, and by REAL. In a dynamic system with many external pressures, it was easy for stakeholders to form reasoned explanations for why their science was correct and why opposing science was insufficient. This was especially true with regard to the public – REAL’s scheme for fish passage over the Elwha dams could seem quite reasonable to a person with no scientific training and a pre-existing preference for keeping the dam. On the Rogue, there was a high school student who pieced together his own plan for how passage might work at Savage Rapids Dam and had his ideas seriously discussed by stakeholders (Duewel, 1999). In the case of the Marmot removal, PGE’s investment in science was widely respected by other stakeholders, so this sort of fight was largely avoided on the Sandy. The exception was the debate over how to handle the river’s hatchery.

Hatcheries have long played a crucial part in maintaining and restoring Pacific salmon runs. Ecologically, their impacts, good and bad, are beyond the scope of this work. Politically, they are intensely controversial. Hatcheries and their fish can be managed in many different ways, serving different goals – fishing in the short term,

wild native runs in the long term – to different extents. The use of stocks originating in other rivers, the regime under which the fish are managed while in the hatchery, the timing of their release, the numbers in which they are released, are all live issues, though for some, none of this matters and no hatchery would be acceptable. On rivers like the Sandy and the Elwha, former dam removal allies continue to quarrel about the goals of restoration, the definition of wild fish, and whose science is best. On the Rogue, the role of hatchery fish was present but subtle – large runs due partly to large hatchery releases convinced removal opponents that the endangered species case against Savage Rapids Dam was wrong. Hatcheries' role in western rivers will remain a thorny problem for many years. All dam removal stakeholders' visions included a free-flowing river, but they did not agree on the origins and identity of the fish in that envisioned river. Restoration is often beset by such controversies, as definitions and goals can be broadly similar enough to agree on the overall project, but not necessarily on the definition of ultimate success (Hilderbrand, Watts, & Randle, 2005).

As Winter and Crain (2008) note, the science of deciding the removal is different from the science of understanding its effects. Those effects remain largely uncertain even after 15 years and the expenditure of many millions of dollars on dam removal in the Northwest. On the well-monitored Elwha Dam (and also on the simple Little Sandy system), the effects of dam removal are clearly living up to expectations, and salmon and steelhead return to their ancestral spawning grounds. On Savage Rapids

and Marmot, though, the quality of the fish ladders was never quantified (and it changed over time), so there is no baseline from which to measure those removals' effects. This is a problem for the large majority of dam removals along the western coast of the United States that had upstream passage over the dam (see Chapter 6). It is likely that most removals have benefitted fish by easing access to habitat and restoring natural flows, but it would be better to have a firmer basis for evaluation of the effects of large public investments in dam removal. Future projects should receive structured monitoring to inform the debate over dam removal and provide diverse stakeholders with some concrete information from which to work.

Venues

The dam removal policy subsystem is continually under construction, and dam removal issues can be legitimately contested in many arenas offered by Klyza and Sousa's (2013) green state. There is no single authority associated with dams and no law directing their removal, so advocates had to exhibit creativity in finding political levers with which they could begin the process. Dam removals are guided by the policies and actors governing water, energy, and species – three complex and heavily-layered political arenas. Moreover, dams' public cultural roles cause citizens to object to dam removal, and they can bring their grievances to sympathetic politicians like Brady Adams or Slade Gorton. In the case of Savage Rapids, political venues included the GPID Board, the Oregon water right adjudication process, the Governor's task force, federal court (in the SONCC takings case), the Oregon

legislature, and the federal legislature, with its subsequent appropriations process, as well as some smaller and more personal legal suits. The removal was also, of course, hotly debated in the court of public opinion. The Elwha case also moved through a broad and diverse array of venues, including tribal treaties and their associated politics, though with less litigation and a much smaller role for the state of Washington than Oregon had in Savage Rapids.

People from the local community hoping to save the Elwha and Savage Rapids dams looked to state-level venues. This was productive in the case of Savage Rapids, where Brady Adams and Bob Repine wielded some power over the Oregon Water Resources Department, but futile in the case of the Elwha. There was very little role for Olympia in the Elwha, particularly as no state water right was being adjudicated, but REAL hoped to gain resources and legitimacy there anyway. As noted by the *Peninsula Daily News*, this was something of a puzzling political decision, as any state effort to manage the river in a way that REAL wanted would have to work through federal agencies, which had previously rejected REAL's ideas (Editor, 1997). REAL probably understood this, but as advocates of local resource control its members likely saw state action as more legitimate than federal action, and had better access to power through local representatives like Jim Buck than through Senator Gorton or Representative Dicks. On the Sandy, if anyone in the community considered trying to retain Roslyn Lake by working with their local representatives, they would have run into Governor Kitzhaber, an early and vocal proponent of the

removal. By the time Kitzhaber left office in 2001, PGE was visibly open to preserving the lake if possible, and there would have been no new way for lake defenders to improve their chances in Salem.

An important question that went unanswered in state-level appeals was how the state would have paid the costs of dam retention or new river management regimes – even for the Sandy, with an enthusiastic Kitzhaber in office, funds were not forthcoming. In the more expensive cases of the Elwha and Rogue, the only choice was Washington, DC, where local stakeholders gave up most of their control of the outcome, but gained access to federal resources, enabling them to accomplish dam removal and the rest of their related goals. Moving the conflict to Congress also meant that decision-makers were accountable to all stakeholders and therefore driven to achieve a balanced solution – the Oregon delegation represents all Oregonians, irrigators, anglers, and environmentalists alike. PGE’s Bull Run working group created something of a facsimile of this venue, with everyone represented and PGE in the federal government’s funding role.

In each case, stakeholders moved to create original, inclusive venues in which to work out their issues. The Bull Run working group facilitated by Deb Nudelman was one such, as was the mediated negotiation that resulted in the Savage Rapids Consent Decree. These were somewhat corporatist in nature, creating conditions where the various interests could resolve the situation together, relatively free of public scrutiny

and politicking. To repeat Vogel's (1986) point, the public cannot effectively add much to technical decisions; it was necessary to sideline some zealous but uninformed agitators to forge a durable resolution. The creation of Kitzhaber's Task Force on Savage Rapids and the CAG in Port Angeles were steps toward forging a mega-coalition as well, but they only produced information and recommendations, not actionable decisions. Their effect was muddled somewhat because both were primarily attempts to reach some consensus on the desires of a divided local community and then effectively include the community's perspective in future deliberations. This is a major challenge of land use issues: every land issue begins locally, with some problem in some specific place, and ends locally, with the problem being addressed in that same place, so local support is important.

The successful use of the creative venues noted above marginalized some anti-removal advocates by effectively incorporating local communities: these advocates' claim to represent their communities was the source of their political power. While the NEPA process, which was carried out in each case, does offer the chance for the public to comment, local people felt that they had been ignored and silenced. As Brady Adams (2011) said, for many people "it's not that they necessarily have to express themselves, but people have to be able to feel that they have the ability to express themselves." The likes of REAL and the Three Rivers Watershed Council were able to carry this flag effectively for some years, and they did express the feelings of many local people, but they were only selected by, and beholden to,

themselves. The creation of broad and inclusive venues, outreach efforts toward local communities, and the movement to federal venues with broad jurisdiction and enough resources to make all stakeholders as whole as possible drove the disparate interests involved in dam removal to coalesce into a mega-coalition that was eventually able to conclusively pursue dam removal.

Coalitions

Dam removals are like the battlefield of Thermopylae³⁹, where a small but vigorous political force can fight off an army. Without the likes of ASS and the Three Rivers Watershed Council, the Savage Rapids Dam Act might have passed through Congress in 1994, before the Gingrich Revolution, been funded by Mark Hatfield, and resulted in dam removal by perhaps 1998. REAL, a small group that only raised a few thousand dollars (Chastain 2011), likely added years to the life of the Elwha dams – without it, Slade Gorton would have had little political excuse for opposing dam removal in the mid-1990s. In 2002, it would have been easy for some stakeholders to withdraw from the Bull Run working group and for negotiations to collapse, as they had two years before. When any important stakeholder objects to removal, politicians will be reluctant to express their support and very reluctant to supply funding. In a polarized era of American politics, it has become necessary to demonstrate to a bipartisan delegation that every important stakeholder supports dam removal and to approach decision-makers as a monolithic mega-coalition.

³⁹ The memory of which was recently defiled by the cartoon *300*.

Despite the stark, intense pressures that form mega-coalitions, it is difficult to hold them together. In each case, the presence of a steady and dedicated actor who commanded the respect of other stakeholders was crucial: Julie Keil, Bob Hunter, and Orville Campbell, among others, are credited for their demeanor and interpersonal skills in working with diverse interests. These likely made the difference between a successful mega-coalition and a failed negotiation. While mega-coalitions are liable to rupture after a successful removal, as they have over hatchery fish on the Elwha and Sandy, while they hold together – and in each case, they held through the years between the decision and the actual removal – they are politically unbeatable for the simple reason that no-one is left to beat them.

The common direction of agencies, environmental and fishing groups, and (on the Elwha) the tribe made for advocacy coalitions that worked effectively despite very different missions and choices. Environmental advocates, of course, have no power to order a dam removal, but they were able to drive action from the agencies by making it clear that they would sue to enforce laws like the Endangered Species Act. They were also able to be proactive in the face of challenges – the formation of the CAG, which marked the beginning of the end for the Elwha dams, was the sort of creative innovation that is not likely to be sparked by a resource agency.

In these cases, with federal agencies in favor of dam removal in the context of their missions and environmental and fishing groups and the Elwha tribe having restoration as a core value, the role of local people was the difference between making a mega-coalition or not. The local role is poorly defined in land issues. As Brian Winter (2011) noted on the Elwha, a national park is not supposed to be beholden to a local community. At the same time, the people who live in or adjacent to a river or park have an obvious claim and connection to it that is quite different from that of the park or river's national constituency. On the Elwha, the rise of Friends of the Elwha and the activism of Dick Goin, and on the Rogue, the voice of fishing professional Dave Strahan, born and bred in Grants Pass, showed that the removal was not simply foisted upon the community from the outside (Strahan, 2012). The proximity and connection between Sandy and Portland meant that PGE was something of a local community member itself, and the gap between the town and the company was relatively easy to bridge.

The fluid nature of dam removal politics and policy means that in these cases we see Sabatier and Jenkins-Smith's (1993) policy subsystem under construction. The years between the beginning of the Savage Rapids question in the early 1980s and the end of the Elwha removal in 2014 – well over the ACF's suggestion of a decade – have seen a massive shift in the way dam removal is perceived and in who is willing to support it. As Margaret Bowman (2012) said, removals “started as a super wacky weird idea that everyone laughed at,” but they ended as the subject of broad if

begrudging consensus. However, that time has not nearly been sufficient to form a stable, predictable policy subsystem. Advocacy coalitions are unstable; fishers, environmentalists, and tribes coalesce to drive dam removal, then cleave asunder over hatcheries, and on the anti-removal side, dam owners are easily parted from their ideologically motivated allies. The role of science is crucial, as the ACF suggests, but it is continuously developing. The endangered salmonids that drive much of Northwestern river management have for the most part only been listed since the late 1990s, and as noted above, most of the dam removals that have occurred have not been monitored well enough to define their effects or effectiveness.

In the Advocacy Coalition Framework sense, policies governing dams indicate belief, but they are layered in such a way as to reflect many stakeholders' beliefs. Agency missions, the FERC relicensing process, and even the Endangered Species Act serve many constituencies. Environmental policies tend to be relatively new, and challenging to interpret, in the context of dam removal. While the most powerful and absolute policies involved – FERC relicensing and the Endangered Species Act – played important roles in setting out guidelines for dam removal advocates, even they did not specifically force dam removal. The new era of dam removal began with the FERC-driven removal of the Edwards Dam from Maine's Kennebec River, but the FERC process was very different on the Elwha and the Sandy: on the Elwha it was truncated by the Elwha Act, and the Bull Run removal was a voluntary license surrender by PGE. All three removals involved runs of endangered salmonids, but

only on the Sandy was the listing crucial to removal (though PGE's proprietary calculations make it hard to say this conclusively). The ESA was a strong motivating factor for the Savage Rapids removal, but given the presence of the water right issue, it was not a necessary factor. The removal effort was well underway on both the Rogue and the Elwha before any fish in those rivers was federally listed.

In each case I treat here, major policy questions were left unanswered. Would the state of Oregon or the federal government have forced the removal of Savage Rapids Dam because of the water right or the SONCC? If they had not ordered the removal, and GPID had subsequently collapsed due to federal fines or a reduced water right, whose responsibility would the dam have been, and how would it have been removed, if indeed it had been removed at all? In the Elwha case, it is still undecided whether FERC may license a pre-existing dam in a national park. It was clearer in the Bull Run case that Marmot Dam could have been abandoned by PGE, but would John Esler's "cement waterfall" (Irving, 2000) have been maintained or operated by anyone? Who would have been liable in the case of a dam failure? In each case, stakeholders avoided these questions through negotiated resolutions, two of which culminated in federal legislation. Again, it is unlikely that this funding mechanism will be replicable for removals of future Savage Rapids-esque dams – future dam removals will reach different final resolutions. In the Kingdon sense, dam removal's problem and politics streams are ahead of a sinuous and inconsistent policy stream.

The policy subsystem that governs dam removal cannot be considered to have fully formed until such questions are resolved.

The Future

River stakeholders are stuck with each other. In 21st-century America, with a vast and increasing array of venues open to anyone with any interest in the river, it is very difficult for one important political antagonist to conclusively defeat another. As long as water flows into irrigation ditches and salmon return from the sea, competing stakeholders will have to deal with each other to manage their shared resource, and will have to do it over the long term. The age when dams were built with minimal consideration for ecological considerations has passed, the environmental explosion of the 1960s and 1970s has passed as well, and stakeholders are adjusting to a more complicated and inclusive political era. This dissertation has investigated three facets of three dam removals to generate findings that that might clarify and indicate future directions for future dam decisions and for ecological restoration as a whole. A large-N study investigating these themes would be very useful. I offer them below.

The most challenging frames in dam removal politics are cultural and emotional.

Among the most important differences between the efficient, relatively amicable Marmot removal and the tortuous battles of Savage Rapids and Elwha was local communities' devotion to the dams and impoundments, and their willingness to resist

the forces of dam removal on these grounds. This contrast may have been due to PGE's more conciliatory approach, as some think (Pagel 2011), or it may have been a matter of regional culture, or it may have been a matter of personalities in the community – it is difficult to prove the negative. But in each case, dams' intended functions were not as politically difficult as the public's relationship to the landscape the dams created. These were not conflicts that seriously threatened livelihoods or lifestyles, but they sparked fierce opposition nonetheless. Future work on dam removal should focus specifically on dams' ancillary effects and ways in which local communities' relationship to the watershed has evolved with the dam.

Dam removal conflicts end when they reach a venue that can provide satisfaction for all stakeholders.

In each case, stakeholders sought and found a “win-win” solution. To do this, given the expense of dam removal and the importance of continuing to provide the dam's services for demanding stakeholders post-removal, it was necessary for all stakeholders to work in concert and form a plan that all could support. This demanded the creation of new venues, such as the CAG and the Bull Run working group, and eventually forced moves to the federal level, which was the only venue able to accommodate all stakeholders and fund massive restoration projects that included water treatment facilities, pumping plants, and hatcheries as well as dam removal. PGE was able to contain the issue by funding the project itself, partly by running the

dam for an additional five years. For large dams with complex uses, it is likely that such a venue will be necessary in order for restoration to proceed. Future work on dam removal venues should investigate ways that dam removal advocates reach or create such a venue, given that only limited funding is likely to come from the federal government for the foreseeable future.

Stakeholders form mega-coalitions in order to win political backing, stave off opposition, and resolve conflicts.

Dam removal advocates learned that, with every interest group powerful enough to halt or retard removal, it was necessary to incorporate former opponents into their coalitions and work forward together. This did not mean that friendship was necessary – it was only necessary to make a dam removal plan that incorporated all interests. When every stakeholder has political access and a platform to air their grievances, risk-averse political decision-makers are likely to maintain the status quo and keep dams in the river rather than alienate part of their constituency.

Mega-coalitions may break upon the completion of the dam removal project, but the connections and relationship formed in the course of the restoration can have lasting effects on the watershed. All a watershed's stakeholders are likely to have continuing interests in that watershed and its flows of water, wildlife, and material. On the Sandy, and to a lesser extent on the Rogue and Elwha, the same organizations and

individuals continue to work together on fish and water questions. Basin-scale management is the future, and the present, for many American rivers. A well-run watershed council in a strong political framework essentially maintains and solidifies the mega-coalition, and its successful operation may prevent future controversies from occurring at all.

Most landscapes in the United States, from forests to cities to pastures, have been transformed for human use. As national values and regional economies shift and scientific understandings develop, these transformations lose their vitality and ecological restoration becomes the priority. The users, uses, and policies that have shaped the landscape remain, however, and define the political playing field. A clear-cut forest is not a dammed river, but the political themes that characterized the removals of Savage Rapids, Marmot, and Elwha and Glines Canyon dams are likely to be found in landscapes everywhere.

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Interviews

<u>Name</u>	<u>Affiliation</u>	<u>Date</u>
Adams, Brady	Oregon Senate	8/31/11
Barr, Brian	World Wildlife Fund	8/3/11
Bowman, Margaret	American Rivers	8/16/12
Chastain, Marv	Rescue Elwha Area Lakes	9/9/11
Hamilton, Bob	US Bureau of Reclamation	2/21/12
Hewett, Pearl	Olympic National Park Inholder	11/10/11
Hunter, Bob	Waterwatch of Oregon	4/19/11, 6/16/11, 7/19/12
	Email 5/5/14	
O'Keefe, Tom	American Whitewater	9/13/11
Pagel, Martha	Oregon Water Resources Department	9/6/11
Spickler, Marjorie	Grants Pass Irrigation District	8/21/11
Strahan, Dave	Northwestern Sportfishing Industry Association	7/16/12
Tehan, Michael	National Marine Fisheries Service	5/8/13
Van Dyke, Daniel	Oregon Department of Fish and Wildlife	7/30/12
Winter, Brian	National Park Service	11/10/11

Appendices

Appendix A

Acronyms

ACF	Advocacy Coalition Framework
ASS	Association to Save Savage Rapids Dam and Lake
BACI	Before-After-Control-Impact
BOR	Bureau of Reclamation
BPA	Bonneville Power Administration
CAG	Citizens Advisory Group
CDFG	California Department of Fish and Game
CFS	Cubic Feet per Second
CIs	Conservation Interveners
CRI	Citizens for Responsible Irrigation
ECPA	Electric Consumers Protection Act
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FERC	Federal Energy Regulatory Commission
GPID	Grants Pass Irrigation District
HCP	Habitat Conservation Plan
JCWMIS	Josephine County Water Management Improvement Study
JFWA	Joint Fish and Wildlife Agencies

LEKT	Lower Elwha Klallam Tribe
NGO	Non-Governmental Organization
NID	National Inventory of Dams
NMFS	National Marine Fisheries Service
NPS	National Park Service
NSIA	Northwest Sportfishing Industries Association
ODFW	Oregon Department of Fish and Wildlife
OPA	Olympic Park Associates
OWEB	Oregon Watershed Enhancement Board
OWRC	Oregon Water Resources Commission
OWRD	Oregon Water Resources Department
PGE	Portland General Electric
PNPTC	Point No Point Treaty Council
REAL	Rescue Elwha Area Lakes
RVCOG	Rogue Valley Council of Governments
SLAPP	Strategic Lawsuit Against Public Participation
SONCC	Southern Oregon Northern California Coho
SRD	Savage Rapids Dam
USDOC	United States Department of Commerce
USDOI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service

USFS	United States Forest Service
WDF	Washington Department of Fisheries
WDFW	Washington Department of Fish and Wildlife

Appendix B

Dam Removals and Results

Sources noted are key sources for information on each dam removal. Cost data from separate sources is cited separately.

Full Barriers

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Dam/Location	Height (m)	Year	Cost	Species	Results (Presence/Absence)	Comments
Condit Dam, White Salmon River, WA	38.1	2011	\$35 million ⁱ	Lower Columbia and Bright Fall Chinook, Steelhead	Present ⁱⁱ	Fall Chinook planted upstream
Elwha Dam, Elwha River, WA	32	2011-12	\$324.7 million ⁱⁱⁱ	Coho, Fall Chinook, Pink, Winter Steelhead, Sockeye, Chum	Present ^{iv}	Fall Chinook, pink, some winter steelhead returned unassisted. Chinook and some winter steelhead planted.

Elk Creek Dam, Elk Creek, OR	25.3	2008	\$14.5 million ^v	Coho, Steelhead	Present ^{vi}	Fall Chinook absent. Assisted upstream migration for all species prior to dam removal.
Goldsborough Creek Dam, Goldsborough	10.7	2001	\$4.8 million ^{vii}	Chum, Coho, Cutthroat, few Steelhead, stray Ch.	Chum present, Cutthroat unmonitored. ^{viii} Order of magnitude increase in	Full barrier for Chinook, chum, and cutthroat. Passable for coho and steelhead. Coho planted until 1998.

Creek, WA					coho attributed to removal. ^{ix} Steelhead unknown.	
Two Unnamed Dams, Wa'atch Creek, WA	6.7	2003	\$300,000	Coho, Cutthroat Steelhead	Present ^x	Trout species not monitored.
Little Sandy Dam, Little Sandy River, OR	4.6	2008	\$21.4 million (with Marmot Dam, below) ^{xi}	Coho, Chinook, Summer Steelhead, Winter Steelhead	Present ^{xii}	Occasional pre-removal steelhead presence in high flow years.

East Mill Creek Dam, East Mill Creek, CA	3.7	2008	\$380,000	Coho, Steelhead	Absent ^{xiii}	Annual monitoring
Sparrowk Dam, Murphy Creek, CA	3.7	2003	\$700,000	Steelhead	Present ^{xiv}	
Waterman Dam, Pescadero Creek, CA	3.7	2009-10	\$32,000 ^{xv}	Steelhead	Ambiguous ^{xvi}	<i>O. mykiss</i> juveniles present.

Camp Meeker Dam, Dutch Bill Creek, CA	3.7	2009	\$1.1 million	Coho, Steelhead	Absent ^{xvii}	Coho nearly extinct in the watershed. A culvert was also removed as part of the project. Passable for steelhead, insufficient pre-project monitoring to establish effects of dam removal on steelhead passage.
Maple Gulch Dam, Evans Creek, OR	3	2002	\$10,000 ^{xviii}	Cutthroat, Steelhead	Ambiguous ^{xix}	<i>O. mykiss</i> juveniles present, <i>O. clarkii</i> present, resident vs. anadromous status unknown.
Glenbrook Gulch Dam, Albion River,	3	2010	\$290,000	Steelhead	Present ^{xx}	

CA						
Horse Creek Dam, Horse Creek, CA	2.4	2006	< \$50,000	Steelhead	Absent ^{xxi}	Monitored once
Whites Gulch Barriers, Salmon River, CA	2.1, 1.2	2008	\$100,386	Steelhead	Ambiguous ^{xxii}	Steelhead above lower but not upper barrier

Unnamed Dam, Headquarters Creek, WA	1.5	2000	Unknown	Chum, Coho	Ambiguous ^{xxiii}	Wild runs thought extinct. Chum and cutthroat eggs planted upstream.
Byrne Diversion Dam, Beaver Creek, OR	0.9	2002	~\$15,000	Coho	Present ^{xxiv} Steelhead unknown	Full barrier for Coho. Passable for steelhead and cutthroat.

Partial Barriers

Dam/Location	Height (m)	Year	Cost	Species	Results	Comments
Marmot Dam, Sandy River, OR	14.3	2007	\$21.4 million (with Little Sandy Dam, above) ^{xxv}	Fall Chinook, Spring Chinook, Coho, Summer Steelhead, Winter Steelhead	Anecdotal success ^{xxvi}	Spring Chinook displaying improved fitness – brighter- appearing fish

						on redds. No changes in pre-spawning mortality. Quantitative monitoring ongoing for Chinook, coho, and steelhead.
Savage Rapids Dam, Rogue River, OR	11.9	2009	\$40 million	Chinook, Coho, Steelhead	Anecdotal success ^{xxvii}	Chinook utilizing new spawning habitat in former reservoir. Early arrival in upstream hatchery.
Gold Ray Dam, Rogue River, OR	11.6	2010	\$6 million	Chinook, Coho, Steelhead	Anecdotal success ^{xxviii}	Chinook utilizing new spawning habitat in former reservoir.

Crocker Creek Dam, Crocker Creek, CA	9.1	2002	\$460,000 ^{xxix}	Steelhead	Unknown ^{xxx}	Steelhead found above former dam site, baseline passage data insufficient
Hemlock Dam, Trout Creek, WA	7.6	2009	\$2.8 million ^{xxxi}	Steelhead	No change ^{xxxii}	Multiyear quantitative monitoring, no statistically significant difference recorded
McCormick-Saeltzer Dam, Clear Creek, CA	5.8	2000	\$4.5 million	Spring Chinook, Steelhead	Increased passage ^{xxxiii}	Large increases in Steelhead, Spring Chinook. Spring Chinook passage

						increased from 1% pre-project to 70% post-project.
Powerdale Dam, Hood River, OR	5.5	2010	\$1.35 million	Fall Chinook, Spring Chinook, Coho, Searun Cutthroat Summer Steelhead, Winter Steelhead	Anecdotal success ^{xxxiv}	Earlier arrival observed for spring Chinook and winter steelhead, further upstream reoclonization for coho and fall Chinook. Upstream planting of Spring Chinook and Summer and Winter Steelhead.
Pott Diversion Dam, Currier Creek, WA	3.7	2007	\$30,000	Steelhead	Anecdotal success ^{xxxv}	Observations of increased steelhead spawning

Alphonso Dam, Evans Creek, OR	3	1999	\$55,000 ^{xxxvi}	Coho, Steelhead	Unknown ^{xxxvii}	
Mumford Dam, Russian River, CA	3	2003	\$420,000 ^{xxxviii}	Steelhead	Anecdotal success ^{xxxix}	Observations of increased steelhead activity upstream

Bruton and Taneum Dams, Taneum Creek, WA	2.4, 0.9	2009	\$584,796 ^{xi}	Chinook, Coho	Anecdotal success ^{xli}	Pre-project, one juvenile Chinook, post- project, 14 juvenile Chinook. Coho found upstream. None observed previously.
Gold Hill Dam, Rogue River, OR	2.4	2008	\$1.5 million	Chinook, Coho, Steelhead	Unknown ^{xlii}	
South Fork Klaskanine Dam, South Fork of the Klaskanine River, OR	2.1, 1.5	2007	\$300,000 ^{xliii}	Chinook, Chum, Coho, Steelhead	Unknown ^{xliv}	

Unnamed Dam, Blue Bus Creek, OR	1.8	2007	\$400	Coho, Steelhead	Unknown ^{xliv}	
Buck and Jones Dam, Little Applegate River, OR	1.5	2006	\$300,000 ^{xlvi}	Chinook, Coho, Steelhead	Unknown ^{xlvii}	
Brownsville/Sodom/Shearer Dams, Calapooia River, OR	1.5	2007/ 2010/ 2011	\$2.7m	Chinook, Steelhead	Anecdotal success ^{xlviii}	Steelhead redd density rising, 2009-12, but below historic pre-removal levels. In 2012,

						first Chinook observation since 2007.
Tucker Road Ford, Soquel Creek, CA	1.5	2006	\$700,000 ^{xlix}	Steelhead	Unknown ^l	
York Creek Diversion, Upper York Creek, CA	1.5	2004	Unknown	Steelhead	Unknown ^{li}	
Diversion Dams, Shasta River, CA	1.2-1.8	2008	\$2.5-4 million ^{lii}	Chinook, Coho, Steelhead	Unknown ^{liii}	

Unnamed Dam, Wagner Creek, OR	1.2	2003	\$1,000 ^{liv}	Coho, Steelhead	Unknown ^{lv}	
Krouse-Haggard Dam, Applegate River, OR	1.2	2002	Unknown	Coho, Steelhead	Unknown ^{lvi}	
Satus Dam, Satus Creek, WA	1.1	2009	\$250,000 ^{lvii}	Steelhead	No change ^{lviii}	
Three unnamed dams, Ashland Creek, OR	“Small”	2000	\$247,452	Coho, Steelhead	Anecdotal success ^{lix}	Increased abundances observed in upstream reaches

Unnamed Dam, Poorman Creek, OR	“Small”	1999	Unknown	Coho, Steelhead	Unknown ^{lx}	
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