Dam Management During an Era of Transition

by Mollie Podmore, 2016-17 State of the Rockies Project Fellow

During the early half of the 20th century, landscapes in the West underwent drastic changes as federal water projects rapidly emerged. However, some scholars speculate that recent decades have seen a changing paradigm in water management as a growing concern for conservation, ecological well-being, and social benefits of environmental health have begun to take hold. How are dams and diversions addressed during this transition toward reduction of environmental impact? In some areas, a changing paradigm has led to drastic measures such as dam removal, while others continue to rely on existing infrastructure models. Environmental restoration and hazard mitigation efforts have demanded formerly profitable projects such as southern Washington's Condit Dam to be decommissioned. Meanwhile, a habit of water hoarding continues to drive diversion initiatives such as the disputed Gila River project. What pushes the opposing sides of these divergent initiatives, and how are conflicting interests managed or open to compromise?

Introduction

Water management has been infamous in the American West as one of the most contentious issues for over a century. The region has seen passionate arguments of countless stakeholders, each one claiming to have the answer for how to thrive in an arid landscape. These voices shift constantly, and each must speak within the context of its time - be it dissent or affirmation of the status quo.

In the West, one could not know water management without water infrastructure. For over a century, dams and diversions have played a key role in such conversations. With the passing of each decade, the way that dams are addressed slowly takes on a new shape. However, the enormity of their presence in water management conversations never falters. For over half of the twentieth century, dam construction was considered the golden ticket to taking control of an arid West and establishing within it a well-watered population. Rivers were harnessed for uses ranging from municipal water supplies and irrigation to hydropower production and flood control. Today, cities, agricultural productions, and electrical grids continue to benefit from these concrete-dotted rivers.

However, the conversation no longer revolves so consistently around where next to build a dam. In the 1970s, an interest in environmental conservation took hold (Tharme 2016). For some, the issue was endangered species; for others, it was preserving wilderness. In the realm of water, questions regarding efficiency, necessity, and alternatives began to replace old dreams of constant dam construction.

Presently, those questions remain pertinent. The benefits that reservoirs provide have slowly begun to emerge from other sources. It has become increasingly common to look to alternative ways of procuring water as our "common conscience" stirs and gradually reworks its water ethic (Jeanette Burkhardt, personal communication 2016). A shared awareness seems to be gaining momentum as many groups of people work to think critically and holistically about water issues (Tharme 2016; Jeanette Burkhardt, personal communication 2016).

For some, there is no doubt that a paradigm shift is afoot. Washington's White Salmon River recently saw the unprecedented removal of the Condit Dam, the largest to be brought down, at its time. As the community along its

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banks settles into their new river landscape, many reflect positively on the process that resulted in explosive dam removal. The story of compromise is one that weaves together factors of economics, environmental law, and common conscience - none of which would have taken such a shape if it were not for a changing paradigm. In turn, the success of the seemingly radical project has begun to inspire and validate similar processes in other locations.

Meanwhile, the Gila River in New Mexico tears in opposite directions as it feels both the weight of a new, conservation-minded paradigm and historic roots in the former Engineering Era. Having previously escaped the frenzy of dam construction, it now faces passionate proposals for new diversion infrastructure. The Gila River remains under heated dispute, and no compromise has yet been reached. However, like the White Salmon River, its discussion largely revolves around questions of economics, legality, and public opinion.

This paper will addresses the supposed changing water management paradigm and examine these two case studies, in an exploration of the effects of such a shift on Western water issues.

Changing Paradigm

The Western system of water management is firmly entrenched. Largely, this is a product of the 20th Century dam-building era (Benson 2013). Scholars widely recognize the time between the early 1900s and the 1960s as a feverish construction of water infrastructure projects, often coinciding with interstate compacts (Ibid.). The period was founded on an "ethic of growth" (Gleick 2000); it was driven by a feeling of "water hubris," in which humans made a habit of asserting their control over natural water systems (McCool 2012). As a result, the West's landscape underwent drastic transformation within a few decades.

The reasons for such endless building were many. On the tail end of the Dust Bowl and the Great Depression, the nation was eager to jump on any opportunity for economic stimulation (Reisner 1986). In the Northwest, the promising notion of hydropower took control of the landscape, coming to play a crucial role in production lines backing the Allies through World War II (Ibid.). Further South, intricate webs of reservoirs and diversions promised water storage to facilitate both a population boom and large-scale irrigation projects (Ibid.). Throughout the United States, flood control stood to defend the value of dams (Ibid.). All the while, water projects consistently had a place in political agendas nationwide (Ibid.). It was the "Go-Go Years;" "If there was a stretch of free-flowing river anywhere in the country, our reflex action was to erect a dam in its path . . . [Water politics] were the oil can that lubricated the nation's legislative machinery" (Ibid., 167-8).

It may have been difficult to predict the end of the dam-building era from amidst the craze of construction projects, but scholars now recognize the era's transience just as widely as they do its historical significance. According to Rebecca Tharme, founder and director of Riverfutures, the Engineering Era came to a close in the 1970s (Tharme 2016). As the 70s and 80s unfolded, the nation saw the Early Conservation Era, with a growing concern for environmental protection (Ibid.). During the 1990s, the Ecological Era emerged, with growing holistic outlooks to rivers and their ecosystems (Ibid.). This later gave way to the Social Ecological Era, focusing on "integrated values for people and nature" (Ibid.). It is there that we find ourselves in present day, grappling with questions of how to balance ecological needs with those of humans among them, while remaining aware of the rich history of water management.

Though the dam-building era has, in large part, faded, it is important to remember the scale of the mark that it has left. Richard White points out that we must acknowledge the development that has taken place:

> "We can't treat the river as if it is simply nature and all dams, hatcheries, channels, pumps, cities, ranches, and pulp mills are ugly and unnecessary blotches on a still coherent natural system. These things are now part of the river itself. There are reasons they are there. They are not going to vanish, and they cannot simply be erased. Some would reduce the consequences to a cautionary tale of the need to leave nature alone. But to do so is to lose the central insight of the Columbia: there is no clear line between us and nature . . ." (White 1995, 109).

The lack of clarity on that line no doubt owes itself to the human dependence on innumerable aspects of the envi-

ronment. But perhaps the increasing interest in conservation following the heyday of dam construction also causes that obscurity.

The line has been blurred in the minds of many. Still, there are ties to the ways we have subjected nature to human ways of sculpting. Yet, "Today, everyone would agree that we have a different economy, a different set of environmental values, and different social values than we did fifty years ago" (Beard 2015, 69). The habits of the Engineering Era slowly break down, and the changes are now significant enough for arguments such as those of author and former commissioner of US Bureau of Reclamation, Daniel Beard: "Dam projects built in the nineteenth and twentieth centuries, when viewed through the cultural lens of today, brought us only the illusion of progress" (Ibid., 65).

The growth of this new cultural lens relies on a wide variety of factors. Shifts in the collective thinking incorporate aspects of water management from every corner of the subject. According to Peter Gleick, "this changing water paradigm has many components, including a shift away from sole, or even primary, reliance on finding new sources of supply to address perceived new demands, a growing emphasis on incorporating ecological values into water policy, a re-emphasis on meeting basic human needs for water services, and a conscious breaking of the ties between economic growth and water use" (Gleick 2000, 127). Most likely, a changing national trend of this sort must attribute itself to evolving mindsets on an individual level as well as a legislative one.

Feeling the pull of emerging trends is reason to be eager for what is to come. As noted by a group of veteran Colorado River scholars, the Colorado River Research Group, recognition of the weighty influence that Western water management has had over its region in the past sheds light on the potential for extensive positive impacts moving forward: "By embracing this modern era of demand management with the same passion, ingenuity, and brashness once applied to water development, management of the Colorado River can again be the envy of the world" (Colorado River Research Group, 2015). Already, the United States has seen national-scale transitions toward more conservation-based regulations that may have seemed unthinkable during the fervor of unchecked dam development.

Following the hubris-driven Engineering Era, ways of thinking about water management and water infrastructure began to change. A variety of new legislation reflected that shift. Some had roots in an anthropocentric concern for safety, while others showed the emergence of a conservation movement. From multiple perspectives, each of these changes in legislation brought forth opportunities to rethink the previously unquestioned patterns of the Engineering Era.

Perhaps the least revolutionary of these new legislation was the National Dam Safety Program Act, established in 1996 (Baecher et al 2011). Inevitably, dams built together in one era will eventually grow old together in the next (Pohl 2002). For the West, a series of collapses took place in the 70s and 80s, resulting in the development of safety-concerned legislation (Baecher et al 2011). While thoughts of regulation due to a recognition that water-containing structures do not last forever may have been few and far between during the engineering frenzy, the safety legislation that has emerged is a logical step from an anthropocentric perspective. Unsound dams may pose direct threats to humans and are likely considered worth mitigating by many, regardless of a shared environmental ethic. Acknowledgement of safety hazards regarding dams reflects a subtle weakening of the hubristic mindset that once considered itself all-powerful in controlling rivers.

Yet, preceding the legal recognition of safety reasons to rethink dams by nearly two decades arose a wave of legislation grounded in environmental concern. With the Conservation Era in the 1970s and 80s, a series of new legal requirements began to curb earlier development. Within less than two decades, several new legal requirements shaped what would be a new era of managing a river-human relationship. Between 1969 and 1986, US river-related environmental policy came to incorporate the mandates of the National Environmental Policy Act, the Clean Water Act, the Endangered Species Act, the Pacific Northwest Power Planning and Conservation Act, and the Electric Consumers Protection Act ("Laws and Executive Orders" 2015; White 1995; Pohl 2002). Sudden-

ly, large-scale project planning involved identification and approval of environmental impacts, laws limited pollutants to water, and harm to endangered species became illegal ("Laws and Executive Orders" 2015). Concerning hydropower, laws sought to balance electrical interests with those unrelated to power (White 1995; Pohl 2002).

Though these laws by no means restored every corner of the environment to pristine conditions, they revolutionarily symbolized an environmental ethic that percolated into various operations throughout the nation. The laws, to varying degrees, slowly worked toward preemptively addressing ecological issues. In the Columbia River hydropower system, ". . . for the first time, they tried to change the operation of the river rather than just mitigate the effects of management" (White 1995, 103). The series of Conservation Era laws initiated a pattern of increasingly holistic policy-making.

But such ideas stretched far beyond the halls of Congress. Conservation Era legislation mirrored a similar public attitude. To Brian Ellison, ". . . public policies are reflections of belief systems in that they incorporate values, priorities, causal theories, etc . . ." (Ellison 1998, 12). Laws and amendments of that era directly correlate to citizen movements in favor of greater environmental focus, as seen by a 1980s drop in water use trends despite ever-increasing population and economic output (Gleick 2000). Beginning in the Conservation Era, the weight of environmental costs within both practice and policy decisions has grown tremendously (Ibid.).

Evolving legislation seen through the second half of the twentieth century brought about the validity of dam removal options, and several scholars affirm the roots to be in a public value system. Molly Pohl, Assistant Professor of Geography at San Diego State University, asserts that "The recent escalation of dam removals for environmental reasons is the outcome of a number of scientific, social, and environmental policy changes in recent decades" (Pohl 2002, 6). Contemporarily, ". . . dam removal proposals represent a radical change in western attitudes about the land, from Manifest Destiny urging us to 'conquer' or 'win' the West, to the understanding that natural systems have intrinsic value and are worthy of restoration and protection, not simply exploitation" (Bender 1997, 4).

Recently, the Conservation Era laws and values have become the norm, and their effects on operations continue to grow. Once outlandish dreams of dam removal have carved out a place for themselves in conversation, in news, and in history. The progression of such events are fascinating case studies in light of stakeholder perspectives. Richard White remarks on the Columbia River's plethora of voices:

> "a river subdivided into separate spaces whose users speak to each other in a babel of discourses: law, religion, nature talk, economics, science, and more . . . [The river] changes, and as it changes, it makes clear the insufficiencies of our own science, society, and notions of justice and value . . . If the conversation is not about fish and justice, about electricity and ways of life, about production and nature, about beauty as well as efficiency, and about how these things are inseparable in our own tangled lives, then we have not come to terms with our history on this river" (White 1995, 113).

Tributary of the Columbia, the White Salmon River, found compromise among those tangled conversations, and, as a result, owes its free-flowing nature to a changing water paradigm.

The Condit Dam

Until close to the turn of the century, northwestern-power company, PacifiCorp, operated a dam that was a direct product of the Engineering Era. However, in its federally-required, periodic relicensing process, they became responsible for complying with environmental legislation that resulted from the Conservation Era. The outcome was a tangible representation of an upturned status quo.

In 1913, the crystal-clear waters of southwestern Washington's White Salmon River saw the construction of a dam that stood 125 feet tall and 471 feet wide, forming behind it Northwestern Lake (Bonham 1999; Blumm and Erickson 2012). The Condit Dam had a relatively small power-production capacity of about 14 megawatts[1] (though usually only seven were in use), providing energy to both the Crown Columbia paper mill **(Figure 1)**

[1] According to the Electric Power Supply Association, via the National Hydropower Association, one megawatt is enough to power 750-1000 homes.

Figure 1: Site of the Condit Dam

The site of the Condit Dam was chosen, in part, due to its proximity of the Crown Columbia Paper Mill, about 43 miles away in Camas, Washington. Source: Google Maps

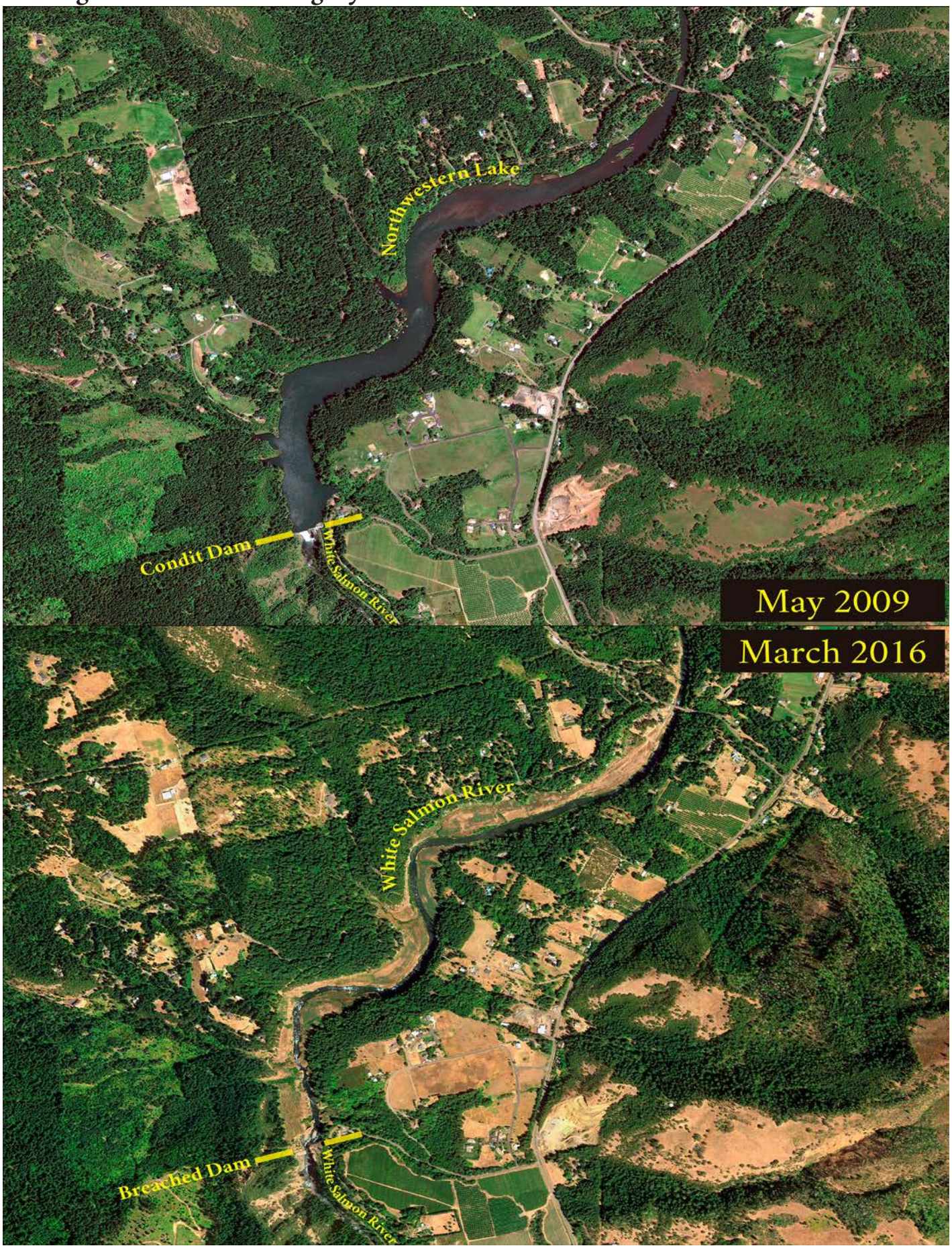
and to regional cities (Blumm and Erickson 2012; Todd Olson, personal communication 2016). Before the electricity became regionally shared via the power grid, the Condit Dam provided one of many well-justified, small energy sources adjacent to a location in demand (Tom O'Keefe, personal communication 2016).

Though construction of the Condit Dam lay under no regulation, it did originally have a fish ladder (Todd Olson, personal communication 2016; Bonham 1999). High water floods merely four years after the dam's construction, however, destroyed the fish passage, and the ladder remained unrepaired for the next century (Blumm and Erickson 2012). Eventually, Conservation Era legislation brought about regulations via the Federal Energy Regulatory Commission (FERC), which requires non-federal dams to undergo periodic revisions of dam operations (Benson 2016). Supposedly, the Condit Dam was subject to complying with this requirement, but for years, it was not strictly held accountable (Bonham 1999). In 1968, the dam's FERC license had no fish passage requirements (Ibid.). In 1980, the commission called for the Condit Dam to allow fish passage, but there was no follow through on the action, and operations remained unrevised (Bonham 1999). With this in mind, the late 1980s saw the first inklings of dam removal ideas dawn in the minds of non-traditional thinkers (Margaret Neuman, personal communication 2016).

During the early 1990s, those ideas began to gain ground. PacifiCorp applied for relicensing and upgrade through FERC. As a result, in 1992, the 1986 Electric Consumers Protection Act suddenly had standing to hold the Condit Dam accountable for equal consideration of power and non-power interests (Bonham 1999; Tom O'Keefe, personal communication 2016). Within the relicensing process, FERC determined the Condit Dam to have little and decreasing importance (Bonham 1999). Meanwhile, fish passage both up and downstream became a priority, and Section 18 of the Federal Power Act allowed federal fisheries managers to determine requirements for relicensing (Margaret Neuman, personal communication 2016; Bonham 1999).

Options for such passage included dam removal, but initial estimates thought it to be very expensive (Bonham 1999). Through independent consulting, however, a collective investigation on the part of environmentalists, tribes, government agencies, and PacifiCorp found the cost of removal to be about 20% of FERC's original estimate of $52 to $58 million (Ibid.). In light of this information, PacifiCorp opted for removal as the most affordable choice. The company temporarily continued operation, using revenue to eventually fund the $17.15 million removal, shown in **Figure 2** (Blumm and Erickson 2012). Meanwhile, the time-intensive nature of the process left locals confused as to whether removal would ever be a reality (Margaret Neuman, personal communication 2016).

Figure 2: Satellite Imagery Before and After Removal of the Condit Dam



The Condit Dam formed Northwestern Lake, seen in the top image. Since the dam's removal, the White Salmon River has reestablished a new channel and efforts to restore the ecology of the former lake bed are successfully underway. Note that differences in vegetative cover are primarily due to seasonal changes, not a result of dam breaching. Sources: NASA and the European Space Agency.

Process

As with any story of controversy, there are countless perspectives regarding the dam removal process. The following are a handful of those voices.

Todd Olson, PacifiCorp's Director of Environmental and Compliance, speaks highly of the stakeholder involvement and satisfaction. In light of increased regulation, PacifiCorp had to choose a new method of management for the Condit Dam site, and their means of doing so was interest-based negotiation. Rather than focusing on positions, Olson worked to engage stakeholders with emphasis on what they hoped to gain from changes in operation, providing a space for mutually beneficial outcomes. For the hydropower company itself, economics drove their interests. Initially, dam removal did not evidently promise the greatest financial gains, but revised ideas and studies of a variety of removal options eventually showed that it could support a sound business decision. Olson greatly values time spent with groups of other interests to break down both sides of the controversy and believes that opposition such as the county, who did not support the plan, ultimately did not stand in the way of removal. (Todd Olson, personal communication 2016)

However, those opposed to PacifiCorp's actions remain reluctant to support the negotiation process. Penny Greenwood, Chair of the Cabin Owners of Northwestern Lake Association has watched this process unfold from her cabin on the banks of the former reservoir. In her opinion, cabin owners, leasing land owned by PacifiCorp, were not considered an outside party and therefore largely excluded from the conversation. As a result, the community fractured, and cabin owners received most of their information regarding the process via word of mouth, rather than directly from PacifiCorp. Instead of direct communication with the hydropower company, the cabin owners relied on others interested in collaboration to make a space for their voices (Penny Greenwood, personal communication 2016).

Greenwood refers to people like Margaret Neuman, Executive Director at Mid-Columbia Fisheries Enhancement Group, who stepped up to improve communication where she saw it falling short (Penny Greenwood, Margaret Neuman, personal communication 2016). For Neuman, the occasional opportunity to comment on public documents or attend a few contentious public meetings were not enough. Her organization took on the tasks of education and outreach as well as salmon recovery and monitoring efforts. Yet, Neuman makes note of understandable reasons for little public involvement. PacifiCorp knew their economic interests, and it was easier to make their own decision from afar. With no public funding and no connection to the federal government, PacifiCorp was under no obligation to involve the public. Unlike Todd Olson, Neuman attributes the slow process to local opposition, reflecting that "People get used to seeing a landscape in a certain way." Between the cabin owners having the most to lose and the county hiring its own lawyer, people were not so quick, at the time of the decision, to jump on the bandwagon behind dam removal (Margaret Neuman, personal communication 2016).

Similarly, American Whitewater Stewardship Director, Tom O'Keefe, recognizes the local reluctance to support the movement. He believes that in the county commissioners, a fear of change caused conflict, and PacifiCorp's need for county permits complicated the issue. Concerning the cabin owners, O'Keefe attributes a lack of understanding of the process, rather than exclusion from it, to the hard feelings. Yet, benefits are worth noting too, and as a river recreation organization, American Whitewater was behind the removal since their early study of the paddling potential below the dam (Tom O'Keefe, personal communication 2016).

For Jeanette Burkhardt, a Ceded Biologist at Yakama Nation Fisheries, the process was much longer than most other stakeholders give it credit. The Confederated Tribes and Bands of the Yakama Nation, with whom Burkhardt works closely, hold treaty rights in White Salmon Basin to hunt, fish, and gather at usual and accustomed sites. But original construction of the dam did not take these people into account, and change came only after one hundred years. For that reason, tribal members were largely longtime supporters of dam removal and some of the most outspoken stakeholders, especially early in the process. Ultimately, the tribes signed on to the settlement agreement with PacifiCorp for removal. Though the tribal perspective actively took part in the removal process, Burkhardt does note limited participation among other local stakehold-

ers. Had all parties been involved earlier and to a greater extent, the general feelings and relationships throughout the process would likely have been more positive, even if the outcome had remained the same (Jeanette Burkhardt, personal communication 2016).

Outcome

Like the process, the near unchangeable results of which Burkhardt speaks are subject to a plethora of perspectives. Despite initial disagreement, however, acceptance of the new nature of the White Salmon River seems to be growing. Most stakeholders recognize outcomes to extend far beyond the riverbed, and each has their own idea of the most noteworthy effects.

To Olson and O'Keefe, the Condit Dam removal was an astonishing example of unexpected commonalities appearing among interest groups. Olson explains that "In the end, it was best for our customers," but they were by no means the only beneficiaries (Todd Olson, personal communication 2016). Through open dialogue, Olson found that groups were able to uncover similar interests as well as ways for PacifiCorp to shift details of the plan to meet specific stakeholder goals (Ibid.). Similarly, O'Keefe concludes that "[Interests] aren't necessarily all incompatible" (Tom O'Keefe, personal communication 2016). Over recent years, environmental and fish-related needs have become increasingly integrated with those of recreation (Ibid.). This is a significant contrast to some historical conflict among environmentalists and recreationalists (Ibid.).

Amidst the success, though, outcomes of dam removal have had their challenges. Cabin owners have felt the weight of negative effects, most of which came unanticipated. With critical ecosystem changes transforming a reservoir into a river flowing through a sparsely vegetated lakebed, cabin owners face increased fire hazard, a more complicated evacuation route, river dangers, and a loss of social elements of the reservoir. Furthermore, shifts to both land and its underlying water table have brought about the loss of several cabins and wells. Greenwood believes acceptance of these outcomes would have been easier had there been proper warning (Penny Greenwood, personal communication 2016).

Yet, cabin owners are not alone as stakeholders working to address unanticipated aftermath of the removal. Returning salmon and river current are both enticing to fishermen and river runners alike. Tribes have chosen to delay exercising their treaty rights to fish areas of the White Salmon River until fish populations grow to a sustainable level. In contrast, the state began allowing sport fishing in the same areas shortly after the river regained its free-flowing nature. Moreover, the growing White Salmon River rafting industry has previously only operated above Northwestern Lake and the Condit Dam, beyond the former upstream limit of fish populations. Now, fish (and fishermen) are returning to the upper stretches of river, where they share space, for the first time, with the rafting business. Listings under the Endangered Species Act complicate this interplay, and anticipation of how each of these interests will accommodate one another remains uncertain (Jeanette Burkhardt, personal communication 2016).

Despite the challenges, however, numerous views reflect successful outcomes. In the big picture, Neuman explains, goals continue to be met, and results have worked out well, given that budget is a limiting factor to PacifiCorp's actions (Margaret Neuman, personal communication 2016). There is no doubt that the river function is bouncing back; fish are returning, environmental goals are being met, and the whole river system recognizably continues to recover (Ibid.). On top of that, the entire process unfurled safely (Ibid.). Meanwhile, the community adjusts as fishing takes on a new form and as recreation becomes a growing stakeholder (Ibid.). Local tribes greeted the dam removal with great celebration, watching their grandparents' fishing sites resurface (Jeanette Burkhardt, personal communication 2016). For Neuman, a feeling of relief fills the air: "This thing could have never happened; it's really sort of a miracle that it did" (Margaret Neuman, personal communication 2016).

Relevance

The story of the Condit Dam represents the changing water paradigm not only on an intellectual level, but also on one felt by individuals involved in the process and the results of dam removal. The area plays a role in an increasingly common ethic of questioning. Locally, attitudes have shifted relative to new eras. The results of the process have

begun to normalize similar ideas for water project management beyond the bounds of the White Salmon River Basin.

Upturning the status quo with projects of this sort has resulted in a feeling of "renewed scrutiny" on the part of many diverse stakeholders (Jeanette Burkhardt, personal communication 2016). Even PacifiCorp, with a seemingly singular interest in economic advance, now constantly asks whether relicensing is truly the best option (Todd Olson, personal communication 2016). And relicensing is simply one example in a growing sea of opportunities to rethink established norms. In the words of Jeanette Burkhardt, "We live in a world where we need to really look at the cost and impact of what we do [and that is becoming] more part of the common conscience" (Jeanette Burkhardt, personal communication 2016). At the site of the Condit Dam, that conscience is significantly more common than it was twenty years ago.

Among dwellers of the White Salmon area, attitudes noticeably transformed as plans for dam removal got underway. After the decision was confirmed, opposition declined while the public anticipated the October 2011 breaching (Tom O'Keefe, personal communication 2016). Jeanette Burkhardt witnessed a "palpable shift in attitude over time about the dam removal" (Jeanette Burkhardt, personal communication 2016). People initially assumed the idea crazy, but river recovery now exceeds the expectations of many (Ibid.). During the two decades from start to finish of the dam removal process, a new paradigm of water management seems to have visibly taken hold among locals of the White Salmon area.

More importantly, such changes in mindset extend far beyond Klickitat and Skamania counties. Trends of dam removal have also taken shape on the Elwha River, and Washington's newly free-flowing rivers have "really changed the dialogue we have now in terms of going into relicensing" (Tom O'Keefe, personal communication 2016). Removal is now "legitimately on the table" (Ibid.). Similarly, Burkhardt speculates that "Subsequent removals will be easier [because] people understand that this is not a crazy idea . . . in some cases it makes sense . . . it makes sense to question [costs versus benefits]" (Jeanette Burkhardt, personal communication 2016). This is already seen with the possibility of dam removal on the Klamath River (Ibid.).

Lessons regarding the river recovery process apply both to canyons that have been dammed and to water systems that remain unrestrained. The importance, including an economic one, of free-flowing rivers increasingly weights conversations (Jeanette Burkhardt, personal communication 2016). Those contemplating new dams now seem to think twice, and presumably, "building a brand new dam on an undammed river is going to be virtually impossible [in the United States]" (Jeanette Burkhardt, personal communication 2016; Todd Olson, personal communication 2016). Even internationally, the White Salmon River proves relevant, as Nepali government officials recently visited Washington to measure the value of natural streams against the possibility of dam construction on their own rivers (Jeanette Burkhardt, personal communication 2016).

The Condit Dam directly experienced each era over the past century. It was built during the earlier part of the Engineering Era and coincidentally came to be a cutting-edge example of dam removal on the early side of the Social Ecological Era. When constructed, the Condit Dam fit the standard of the dam-building time. Yet, it eventually became the direct subject of rising questions, of changes in common mindset, and, consequently, of the Conservation Era's increasing environmental regulation. A variety of interests were able to draw upon each other, and though stakeholders admit to the challenges of aligning their goals, many consider the results a success. Both its shortcomings and its strengths are recognized as stories worth learning from, even far beyond the bounds of the White Salmon River Basin.

Gila River Diversion Project

The Engineering Era left very few water systems in their natural state. In fact, between United States borders, only 2% of rivers and streams endure in their free-flowing nature (Tharme 2003). Although the lower Gila River is dammed in Arizona, its upper reaches in Southwestern New Mexico fit into that 2% ("The Gila River" 2016). Flowing through the heart of a variety of ecosystems, the Gila is home to remarkable wildlife and stunning land-

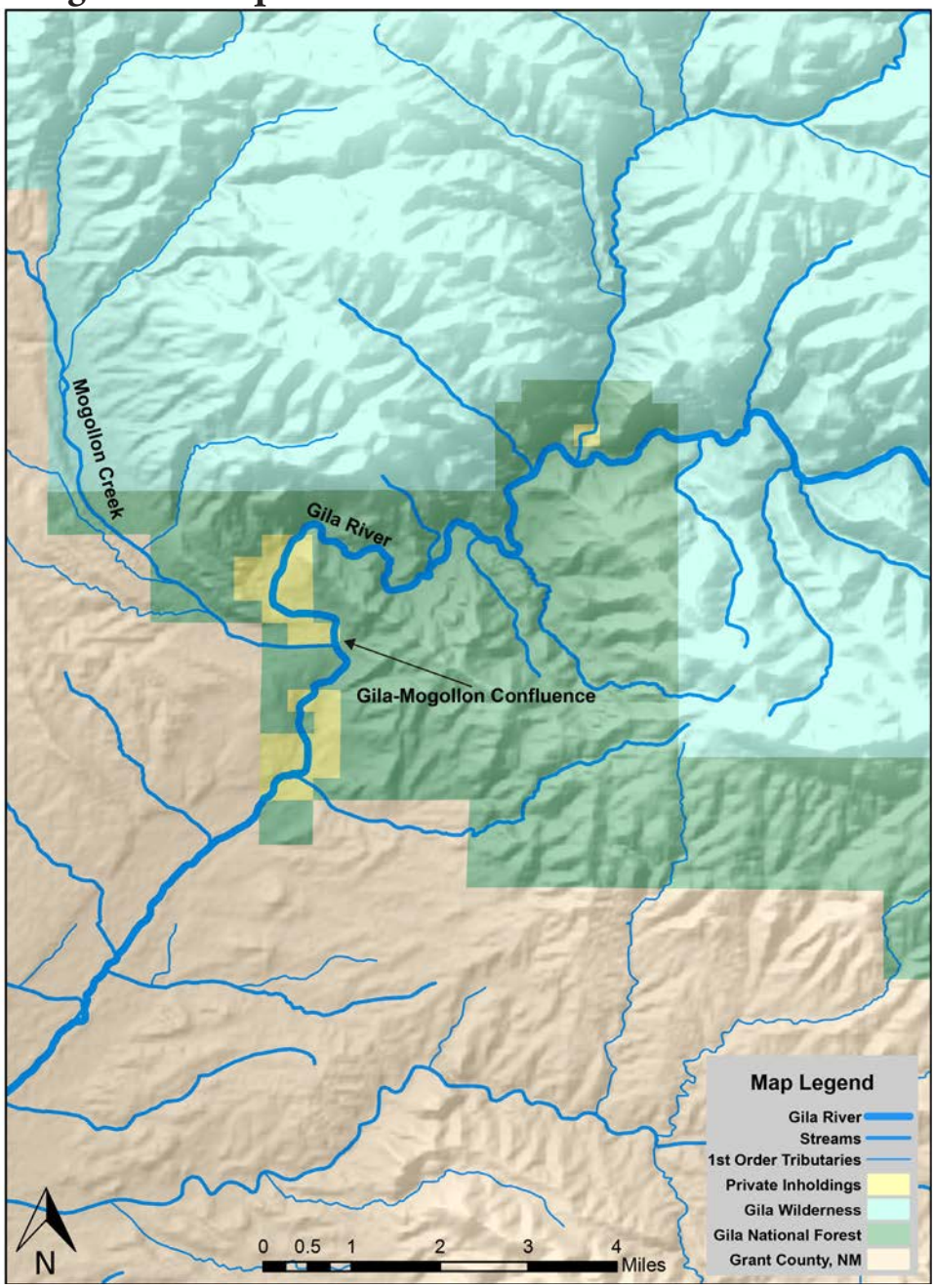
scapes. Aldo Leopold, who is credited with the idea of well-preserved wilderness areas, recognized the value of the Gila's headwaters as early as 1924, setting the stage for it to become the first designated wilderness after the 1964 Wilderness Act ("Gila River: The Origin of Wilderness" 2016). In contrast to the White Salmon River, the Gila area encountered exceptional protection from the first stages of the Conservation Era. But in further contrast to the restored White Salmon River, the Gila River now faces threats of development immediately outside its wilderness boundary (Norm Gaume, personal communication 2016).

2016 marks the 100 year anniversary since the first federal step towards putting a dam in the Gila River (Norm Gaume, personal communication 2016). Over the course of a century, the Gila has repeatedly been the focus of studies and speculations regarding its potential for hydropower and consumptive water use (Ibid.). The first dreams of a diversion on the Gila River in the 1910s gave way to the promise of increased water rights to New Mexico nearly seven decades ago (Allyson Siwik, personal communication 2016; Paskus 2016). In the Western spirit of water-hoarding, lawsuits among states often revolve around allocations of water rights, and many such negotiations have involved the Gila River. In the 1950s, an *Arizona v. California* water settlement apportioned 30,000 acre feet per year to New Mexico, and the 1968 Colorado River Basin Project Act allocated 18,000 acre feet to the state (Norm Gaume, personal communication 2016; Allyson Siwik, personal communication 2016). The upper Gila has rarely had rest as a free-flowing river.

Historically, many incarnations of a Gila River water project have centered around the same point on the river - near the confluence of Mogollon Creek with the mainstem river, lying immediately outside of the wilderness boundary (Norm Gaume, personal communication 2016). Be it for hydropower in the early Engineering Era or for irrigation in contemporary years, developers seem fixated on this location (Ibid.). Yet, support for the various project ideas has never quite been able to follow through. Even as the Engineering Era gained momentum in the 1920s and 30s, the Bureau of Reclamation's studies on the Gila River concluded that the water supply was over apportioned (Ibid.).

Presently, the Gila River is the centerpiece of a contentious discussion of diversion for storage, irrigation, and municipal water use: a water project whose idea

Figure 3: Proposed Site of the Gila River Diversion



Proposed diversions on the Gila River would fall immediately outside of the wilderness boundary, near the river's confluence with Mogollon Creek. Sources: USFS, ESRI, ArcOnline.

germinated in 2004 - the modern manifestation of many historical proposals (Paskus 2016). While this version would not leave the Gila with a typical dam and reservoir, water project proposals loom with the possibility of large, flow-altering diversion infrastructure (Walton 2015, "Gila River Diversion Reaches Decision Point").

With the Arizona Waters Settlement Act (AWSA) of 2004 this recent version of a Gila River water project became a possibility (Paskus 2016). The Act reduced allocation to 14,000 acre feet per year for New Mexico but allowed the state to potentially divert from the Gila River in exchange for delivery of Colorado River water to the Gila River Indian Community downstream in Arizona (Allyson Siwik, personal communication 2016). The operation would potentially include off-stream reservoirs in nearby Spar Canyon or on individual farms, underground water storage, or use of existing infrastructure from Freeport McMoRan Mining Company (Paskus 2016). Plans pose complexities of politics, infrastructure, and payment, but federal funding has been a possibility since the state's 2014 decision to support diversion (Ibid.).

In response to this opportunity, five entities formed the Gila San Francisco Coordinating Committee and began working to fund studies illustrative of the impacts of diversion. Simultaneously, a technical committee made up of forty diverse-interest representatives discussed what had quickly become a controversial issue. By the end of 2005, involved parties agreed to spend $943,000 on studies seeking the best ways to meet water needs, and state legislators passed the plan to do so. However, environmental groups soon urged Governor Richardson to veto the bill, and stakeholders were back to the drawing board in terms of reaching consensus. In the wake, Southwest New Mexico Stakeholders Group emerged, in search of an agreement fundable under AWSA requirements by the state's water management entity: the New Mexico Interstate Stream Commission (NMISC). Any plan would have to meet water supply demand and consult the Southwest Water Planning Group (Craig Roepke, personal communication 2016).

By 2011, however, the discussion still presented a powerful rift among locals, and the NMISC began pursuing an alternative to their compromise-focused plan (Craig Roepke, personal communication 2016). The commission accepted proposals from any interested stakeholders for how best to address Gila area water issues, sending them through a two-tiered judging process until a handful remained that they deemed worthy of further study and possible funding (Ibid.). Of the fifteen proposals more closely considered, only three involved diversion (Walton 2015, "Gila River Diversion in New Mexico Pits New West vs Old"). Furthermore, those three plans are vastly more expensive than their twelve alternatives (Ibid.).

Pressured by a deadline in 2014, the New Mexico Interstate Stream Commission voted in support of a diversion project (Paskus 2016). Their decision pursued three available sources of funding, each with its own constraints on how the state could use it (Walton 2015, "Gila River Diversion Reaches Decision Point"). The first amounted to the 2004 value of $66 million and could fund a variety of water projects to increase efficiency in four Southwestern New Mexico counties (Ibid.). The second source was valued at $34 million and could pay for the construction of new infrastructure for a diversion (Ibid.). The third source would potentially provide $28 million from a federal Colorado River Basin investment fund, but depended on availability of funds (Ibid.). A 2015 assessment by the Bureau of Reclamation expected the third option to be a very slim possibility (Ibid.). Of these three sources, the NMISC held the most interest in the second and third - those that could support a new diversion (Ibid.). They subsequently informed the Interior Department of their aims to divert the river (Ibid.).

In anticipation of the next steps in the process, the New Mexico Central Arizona Project Entity (NMCAPE) formed as members from the county, cities, and irrigation districts joined with the hope of involvement in building, funding, and operating a diversion (Paskus 2016). As of 2016, it is up to NMCAPE to determine sources and distribution of additional funding, some of which may be the financial responsibility of irrigators, municipal water users, or taxpayers (Craig Roepke, personal communication 2016; Allyson Siwik, personal communication 2016).

However, throughout 2016, planning momentum has met hurdles, largely due to financial restraints (Artz 2016). New Mexico Senator Tom Udall and Rio Grande Foun-

dation President Paul Gessing have both publicly opposed the billion-dollar versions of Gila River diversion plans (Artz 2016; "Udall Raises Concerns about Gila River Diversion, Pushes for Funding for New Mexico Water Projects"). As similarly determined in the case of the Condit Dam relicensing process, economic interests coincide with those of environmentalists. Gessing clarifies, "We understand the environmental angle, but our main concerns are financial" (Gessing, as quoted in Artz 2016). Humbled by budget, the NMCAPE has recently instructed engineering contractors to study project possibilities that fall within the bounds of funding expected from the federal government (Paskus 2016; Allyson Siwik, personal communication 2016). According to some sources, this limit means a range of $80-$100 million, but such estimates leave others skeptical (Ibid.). Concerns from the opposition grow on the basis that planners now split potential diversion projects into phases, considering each section to be more affordable (Allyson Siwik, personal communication 2016). Environmentalists fear total prices could still reach $800 million, and it is unclear whether that budget includes costs of analyses and non-diversion alternatives (Ibid.).

Currently, the buzz of disagreement fills the Gila River area (Paskus, 2016). Lingering features of the Engineering Era tug the river toward diversion, while simultaneous support for the Conservation and Social Ecological Eras manifests itself in stakeholders tirelessly defending the natural river. A tremendous lack of both trust and transparency is a recurring theme that slows progress toward agreement (Norm Gaume, personal communication 2016). Community members, state officials, and fellow stakeholders ardently discuss their water needs, as they approach a 2019 deadline for their final decision (Paskus, 2016). In order to receive the possible federal funding in full, the state must create a detailed plan and perform required studies under the National Environmental Policy Act by December of 2019 (Ibid.). The Southwest anxiously awaits the outcome, as groups from all sides of the dispute work to impress their opinion upon the decision-makers (Ibid.).

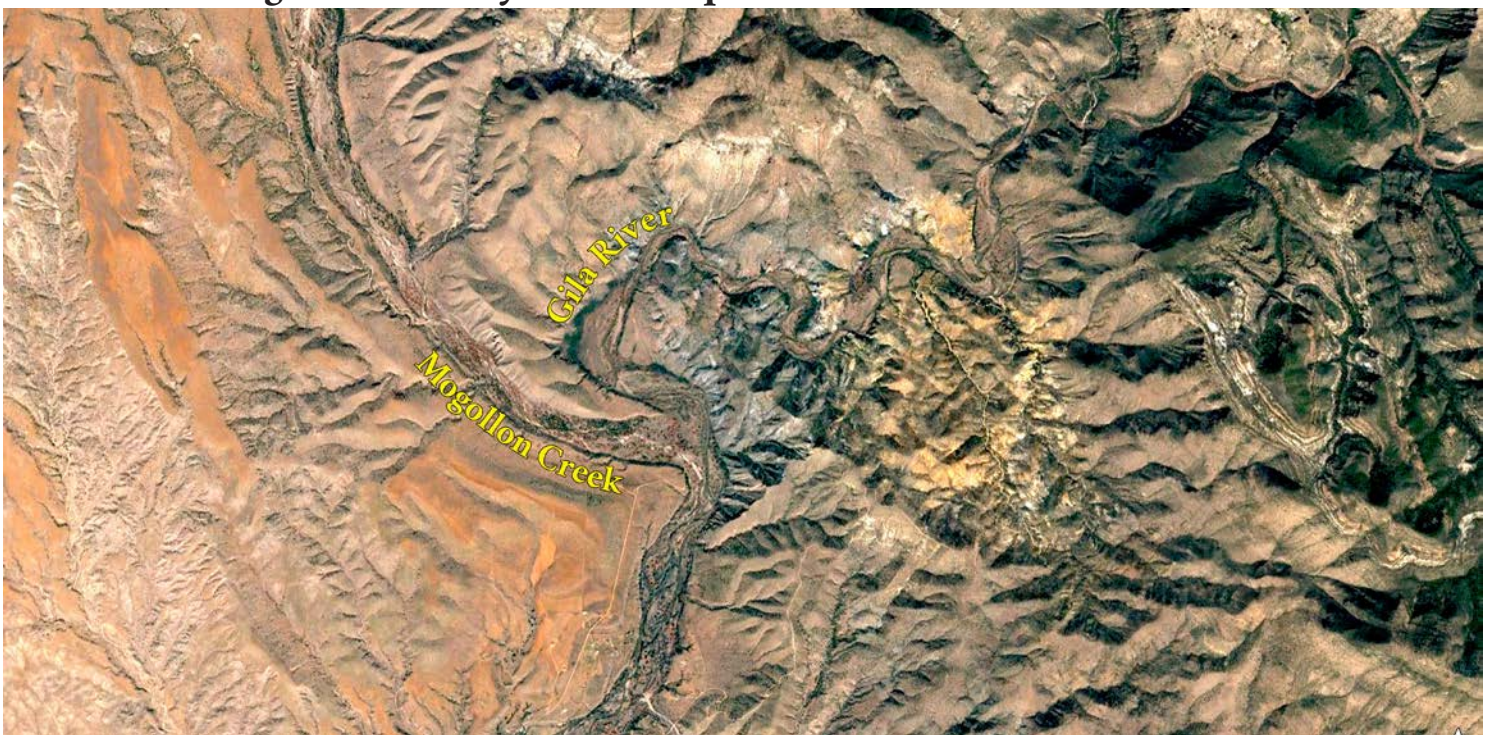
Process

While the Condit Dam removal process managed to draw parallels among a variety of interests, the Gila River diversion project remains deep within controversy. Diversion proponents advertise their project as providing water for irrigation, in-stream flows, and municipal water supply, an attempt to bring together interests from across the spectrum (Final Tier-2 Proposal Submitted by the Gila Basin Irrigation Commission in Grant County, NM to the ISC Evaluation Panel). However, a lack of trust among environmentalists and diversion proponents, and an overall lack of transparent communication leaves stakeholders questioning the true intentions of their communities.

Despite the disagreement, those involved in the Gila River controversy know the importance of appealing to interests across the board. Those in favor of the diversion make a case for the possible benefits beyond their own personal interests. A proposal submitted to the NMISC's two-tier process defends the project saying it would bring dependable flows for agriculture, listed species, recreation, riparian areas, wildlife, and "other environmental considerations" (Final Tier-2 Proposal Submitted by the Gila Basin Irrigation Commission in Grant County, NM to the ISC Evaluation Panel). From this point of view, there seems to be a congruence in terms of potentially supporting both ranching interests and the environmentally focused side. Opponents, however, believe that a variety of interests would find more common ground in the absence of a diversion. A leading organization for those opposed to diversion is the Gila Resources Information Project. The group's Executive Director, Allyson Siwik, explains that locals across the board are often against the project (Allyson Siwik, personal communication 2016). Liberals, she notes, generally consider the free-flowing Gila River to be more beneficial to environmental issues, while their more conservative counterparts often oppose the rise in taxes that a diversion would entail (Ibid.).

Craig Roepke, Deputy Director at New Mexico Interstate Stream Commission, tells yet another story of the need for agreement. He explains that the Gila area wrestles with a way to balance the environmental importance of the river with the human need for its water "to feed their families basically." The NMISC works within that dichotomy to "meet both those needs with the same drop of water." According to Roepke, there is no question regarding the need for water; arid southwestern New Mexico faces dropping aquifers and a significant water deficit of up to 30 to 40,000 acre feet per year. Even if local municipalities

Figure 4: Aridity of the Proposed Gila River Diversion Site



Tension surrounding the proposed Gila River diversion is amplified due to the area's arid climate. Many opposing groups desire access to the small amount of water that is available. Source: NASA.

halved their yearly use of 50,000 acre feet, the remaining 25,000 would not meet the deficit. While increased costs of water use due to a new diversion are not ideal for irrigators, "people are saying they are willing to [pay]," as it is cheaper to pay for water than to lose an entire crop. (Craig Roepke, personal communication 2016)

Roepke reflects upon the enormous rift among Gila River stakeholders, feeling little hope toward the possibility of reaching a consensus. He explains that the "conflict [between irrigators and environmentalists] is not going away . . . because there just simply isn't enough water to give every person, every bird, every fish . . . the water it needs." Even if everyone got their fair share, there still wouldn't be enough water in the system to fully supply every interest. The NMISC's inability to facilitate consensus among irrigators and environmentalists is inevitable, Roepke says, due to the nature of stakeholders' goals. Environmental groups "want to completely restore the wild and free-flowing nature of the Gila . . . The only way to do that is to get the people out of there." Therefore, the NMISC, he says, had no choice but to abandon hope of facilitating a unanimous agreement, and was forced to instead accept and evaluate proposals. (Craig Roepke, personal communication 2016). Where the White Salmon River and the growing Social Ecological Era emphasize inclusivity and collaboration, the approach to the Gila River seems to grow narrower and less democratic - reminiscent of Engineering Era patterns.

However, environmentalists deeply disagree with the NMISC's narrative. Conservation group, Western Resource Advocates, for example, points out the array of costs associated with the proposed project: not only would a diversion risk enormous costs for ratepayers and taxpayers, but it would also endanger recreation and its related tourism, a diverse riparian ecosystem, and species listed under the Endangered Species Act (Tellinghuisen). Throughout historical proposals to dam the Gila River, financial and environmental costs have been found to exceed the potential benefit (Tory 2015). Currently, appraisal analyses have determined similar outcomes (Walton 2015). Noting this information, Siwik cries, "Any rational person would say oh my God this is not doable!" (Allyson Siwik, personal communication 2016). While the proposal submitted by the Gila Basin Irrigation Commission pursues a diversion that ". . . supports the long and rich history of diversified agricultural production, which is the major industry in the Gila Basin," their opposition denies any large-scale economic value of Gila area agriculture (Final Tier-2 Proposal Submitted by the Gila Basin Irrigation Commission in Grant County, NM to the ISC Evaluation

Panel; Norm Gaume, personal communication 2016). According to former Director of the Interstate Stream Commission, Norm Gaume, most existing irrigative water use goes to hobby ranchers, while possibly four or five people earn their living from irrigating on the Gila River (Norm Gaume, personal communication 2016). Unlike other areas raising cash crops, Siwik believes agriculture in the Gila area community to lose money every year (Allyson Siwik, personal communication 2016). Ratepayers for water would see costs rise to potentially $8000 per acre foot, and jobs created by construction of the diversion would be temporary (Tory 2015; Allyson Siwik, personal communication 2016).

For both Siwik and Gaume, the entire disagreement revolves around manipulation and dishonesty, resulting in continued unrealistic ideas. Where Roepke believes consensus is impossible, Siwik believes the NMISC has "creat[ed] a water crisis" in order to get the promised federal funding the state so avidly pursues (Allyson Siwik, personal communication 2016). Throughout the process, analyses have focused on worst case scenarios, denied the value of proven efficiencies like drip irrigation, and failed to address existing irrigation diversions as the cause for periodically dry stretches of river (Ibid.). Siwik laments this obscurity, saying "Listen, we have to agree on a common set of facts . . . I put the blame for that on the state . . . There's never been an agreement on the need . . . We don't even agree on the science" (Ibid.). On numerous occasions, the local CAP entity has violated the Open Meetings Act, and the NMISC has secretly held meetings (Allyson Siwik, personal communication 2016; Norm Gaume, personal communication 2016). In response, opponents have repeatedly requested information and public records (Norm Gaume, personal communication 2016). According to Siwik, the disconnect lies in the NMISC's interest in the full 14,000 acre feet simply because it is a possibility, while irrigators have a more humble interest in consistent water during low flow months (Allyson Siwik, personal communication 2016). In her perspective, a full understanding of irrigators' modest needs would present possible solutions, while a full explanation of diversion cost to ratepayers would result in a very different discussion than is presently seen. (Ibid.)

Due, Siwik says, to the State's reluctance to give up the century-old dream of a diversion, compromise has been so elusive. While the State did provide some money to non-diversion alternatives, Siwik believes any further space for compromise would pose a threat to the State's goals, and they have therefore broken up discussions of other possibilities. A previously existing multi-stakeholder planning process, for example, has been removed since a 2011 change in office. Siwik believes that, since the beginning, those who disagree with her have sought federal funding and the fruition of a lingering 1910 idea. They want to make sure they get it, she explains (Allyson Siwik, personal communication 2016).

For Norm Gaume, the dishonesty of which Siwik speaks is the most defining feature of the dispute. Interest in a Gila River water project is nothing new, but, he believes, "What makes this particular effort unique is that it's based entirely on fraud." As far as Gaume's personal involvement, what was initially an effort to save the Gila River as it flows through designated wilderness until its confluence with Mogollon Creek is now an effort to speak out against what he considers to be the State's fraud and dishonesty. He mentions multiple secret and illegal meetings that have been held, and he blames the State for simultaneously playing up expert disagreements to discourage locals from paying attention. While there were originally huge efforts among stakeholder groups and exhaustive meetings, the facts of hydrology and impacts to designated wilderness fell to the wayside in contrast to talk of values. Many discussions focused on proponents feeling cheated of their supposed right to diversion. In contrast to the Aldo Leopold ethic that protected land in the Gila area decades ago, Gaume cries, "this fraudulent approach just incenses me" (Norm Gaume, personal communication 2016).

Outcomes

Though a decision regarding the Gila River diversion has by no means been reached, the discussion has already played an enormous role in local interactions between residents as well as in their engagement with water issues. Locally, water conservation (particularly in the municipal realm) has gained momentum, shedding light on the influences of a modern Social Ecological Era. Meanwhile, opponents on either side of the dispute passionately

defend their own viewpoints (Allyson Siwik, personal communication 2016).

The fervor surrounding water use has left locals thinking critically about the issue more than they otherwise may have, and it has brought about noteworthy results (Allyson Siwik, personal communication 2016). In a political sense, elections for local Grant County offices have reflected a strong preference for candidates who oppose the diversion (Ibid.). Concurrently, the AWSA funded $3 million for municipal conservation efforts (New Mexico Interstate Stream Commission). Water consumption on an individual level has noticeably decreased (Allyson Siwik, personal communication 2016). Siwik has found that "people are much more engaged in water issues as a result [of the ongoing discussion]" (Ibid.). As with the White Salmon River, these water management decisions bring their related issues to the forefront of locals' minds, influencing their conversations, actions, and opinions.

Simultaneously, water has come to have a powerful influence over relationships between proponents and opponents living in the arid Southwest. Interviews and personal experience in the Gila River area have illuminated the severity of local's divided nature. Not only are involved parties wary of interviewers, but each side is also quick to fault and even name-call their opponent. Roepke reflects that "It's too easy to split ourselves up in little polarized groups of people," and it is imperative to find ways around those divisions (Craig Roepke, personal communication 2016). Though there are deep fissures between opposing parties, Siwik believes that the need to be civil to one another within a heated debate presents positive opportunities for relationship building (Allyson Siwik, personal communication 2016). Despite nearly opposite perspectives regarding the diversion proposal itself, Siwik and Roepke agree upon the need to admit the validity of others' interests. Roepke recognizes that, "When there are valid needs . . . you can't just arbitrarily say we are going to meet one and not the other" (Craig Roepke, personal communication 2016).

In Gaume's eyes, the entire process has shed light on the importance of public advocacy. True to his word, he has personally spent thousands of hours fighting on behalf of a free-flowing Gila River, and considers his efforts successful. Gaume notes that, for many, a desire for the diversion remains, despite the confusion regarding where and how it would come to fruition. However, he holds that plans to divert the river either within National Forest boundaries or immediately downstream of the Wilderness are no longer on the table. In his opinion, this means that "[diversion advocates] no longer have any viable options - none," but having not fully studied the options, the State remains either unaware or unaccepting of that fact. Gaume attributes the success of the environmentalist side to the public advocacy work of himself and others. Diversion opponents have managed to hold the State accountable to the Open Meetings Act and to public record requests (Norm Gaume, personal communication 2016).

Relevance

With a constant back and forth battle between proponents and opponents of the Gila River diversion project, it is evident that this issue spans both historical and contemporary patterns of water management. While rooted in habits of the Engineering Era, the Gila River diversion project also sees a significant push to embrace a movement of conservation and increased efficiency within the bounds of existing infrastructure. On the banks of the Gila River, water management is still very much in a time of slow transition, straddling both old and new paradigms.

Several writers have pointed out the Gila River as a symbol of current water ethics, each point in the decision-making process being a choice between the old and new paradigms. In the heat of the State's 2014 deadline for a decision, reporters explained that, "If the [NM]ISC elects to pursue diversion, it will be in keeping with water management precedent. Diversions are a fact of life in the Southwest . . ." (Goldfarb 2014). One year later, Secretary of the Interior Sally Jewell faced a similar choice and the press noted that, "She can continue the pursuit of a water project that follows the 20th century path of economic growth through the construction of big centralized infrastructure. Or she can reject the plan because it does not embrace the emerging development ethic of the 21st that recognizes ecological limits, and prizes conservation and efficiency" (Walton 2015, "Gila River Diversion Reaches Decision Point").

Jewell approved forward movement on the diversion project, and those who worry that precious water will land in the hands of other users applauded her (Fisher 2015; Final Tier-2 Proposal Submitted by the Gila Basin Irrigation Commission in Grant County, NM to the ISC Evaluation Panel). The Gila Basin Irrigation Commision, for example, is troubled that, "At present, during high water events, excess water flows down the river into Arizona and is lost to New Mexico water users" (Final Tier-2 Proposal Submitted by the Gila Basin Irrigation Commission in Grant County, NM to the ISC Evaluation Panel). According to some, this mindset is so powerfully ingrained that it will inevitably carry forward: "Even if the Gila diversion ultimately fails, the idea will not die. If history is a guide, as long as there is water in the river, someone will want to take it" (Walton 2015, "Gila River Diversion In New Mexico Pits New West vs Old"). However, there seems to be a growing interest in the Ecological Era's influence on the Gila River issue. While the 2014 and 2015 decisions reflected a lingering Engineering Era, many remain curious as to whether a new, ecological paradigm will influence the 2019 decision.

As recent decades give way to new national trends concerning water, increasing questions pressure the 20th century status quo in the Gila debate. These questions often begin in the voices of avid river lovers such as Gaume, who declares the present system "incredibly inefficient . . . primitive and unmanaged." Presently, irrigators use bulldozers to push riverbed sediment up, creating an earthen diversion, lasting only until the next flood. This technique illegally moves nearly the entire flow of the river from its course. Gaume welcomes the opportunity for increased efficiency, claiming that most pasture irrigation could be done with one fourth of the water presently used (Norm Gaume, personal communication 2016).

Ideas based in this changing paradigm no longer appear only in the minds of progressive environmentalists. Despite its frequent position as the driving entity behind water projects, "the Bureau of Reclamation found that municipal conservation and wastewater reuse had the highest ratio of benefits to cost" (Walton 2015, "Gila River Diversion In New Mexico Pits New West vs Old"). Many New Mexico citizens agree with that, as shown in a 2013 poll conducted by Public Opinion Strategies: 85% of New Mexicans prefer "Using our current water supply more wisely, by continuing to conserve water, using new technology to help reduce wasted water, and increasing recycling of water," as opposed to the 12% who favor "Diverting more water from New Mexico's rivers to communities where more people live" (Weigel 2013). Furthermore, 69% of those surveyed viewed the Gila River Diversion Project as "a temporary fix that will NOT permanently help to solve the water supply problems in part of our state" (Ibid.). Meanwhile, the possibility of legal requirements for conservation-oriented approaches specific to the Gila emerged in 2014, when Senator Peter Wirth wrote a bill for non-diversion alternatives (Goldfarb 2014). The bill's mandates for the NMISC to spend $82 million in federal funds on conservation techniques including watershed restoration, reuse, and infrastructure improvement may have promised the possibility of a 22,000 acre foot increase in supply (Ibid.). However, action on the 2014 bill has been postponed indefinitely ("New Mexico SB89").

To Gaume, the greatest opportunities for compromise and successful river management lie in efficiency efforts of that sort, and so too do they reflect a growing new paradigm. Gaume personally believes Southwest New Mexico to have a significant ethic of "resources for empire," and he is suspicious that federal resources may end up going towards private gain. Yet, he speculates that the area's growing retirement community has diluted that ethic over time. Gaume notes that both sides still have "perspectives that are deeply entrenched," but he believes that, in light of an increasing ethic of conservation and efficiency, "It's inconceivable to me [Gaume] that we [diversion opponents] are going to lose." Fifty years ago, he explains, the possibility of a Gila River dam met rejection due to its high cost and unneeded water. Now, as a result of the Endangered Species Act, elimination of potential dam locations, and a set of impossibly strict NMISC restraints, a diversion would be "an order of magnitude more difficult [to implement]" (Norm Gaume, personal communication 2016).

With one foot in each era, the Gila River ties to water issues in countless other regions, particularly those of similar aridity. For Roepke, the cross-regional similarities reside mainly in a widespread lack of water (Craig Roepke, personal communication 2016). He stresses, "I don't think the Gila, at its core, is any different than any other

water issue . . . [Be it] in New Mexico, the West, the United States, or the world, there's very little freshwater" (Ibid.). Unfortunately, the preciousness of this resource, Gaume and Siwik have found, has caused controversy - and in some cases, fraud - to be the common ground among Western rivers (Norm Gaume, personal communication 2016; Allyson Siwik, personal communication 2016). On the topic of manipulation and dishonesty, Siwik laments, "I mean it's the same old story everywhere . . . And I wish we could say we are different" (Allyson Siwik, personal communication 2016).

In contrast, though, the Gila's relatability to other regions also lies in new paradigm modes of thinking. Gaume sees its greatest link to broader water issues to be a question: "When are we going to recognize that rivers have value as rivers," rather than merely an effort to make their water's value economic? (Norm Gaume, personal communication 2016). Although the Gila presently stands as more of an opportunity for ecological thinking than as an example, it is not exempt from the paradigm shift that shapes rivers across the West.

Conclusion

On a surface level, the Condit Dam removal and the Gila River diversion project appear nearly complete opposites. Ecologically, the lush White Salmon River Basin could not be more distinct from arid southwestern New Mexico. The former challenges the status quo through an undoing of the infrastructure which has been integral to the West for the past century. The other, in contrast, seeks to continue the thirsty pattern of new water project construction. Such a juxtaposition shows that the transition is slow, though each case study points, in its own way, toward a growing scrutiny regarding the patterns that persistently shaped previous water paradigms.

Both the Condit Dam removal and the Gila River diversion project center around factors that consistently have tremendous influence over modern issues. Stakeholders in both the Colorado and Columbia River Basins frequently refer to financial, legal, and public opinion pressures throughout the river management decision making process. Simultaneously, environmental factors steadily underscore the management decisions of each geographic region. In a society shaped by economics, the White Salmon and Gila Rivers each pose questions heavily dependent on and constrained by budgets. Similarly, legislation in place, to a large degree, structures their management. Meanwhile, as with any controversy, the whirlwind of a gradually shifting common conscience and voices of public opinion play a critical role in addressing dams. Among the constant interplay between a wide variety of interests, each side of each debate draws on credible values to make its case.

With such a heavy influence from these factors, there arises an opportunity to rethink the status quo, look to important interests tangled in river management, and ideally compromise. The Condit Dam removal can by no means speak for the future of all dams, but it is a fascinating example of appealing to a variety of interests while diving into the growing new paradigm of our present era. The decision for dam removal relied on a combination of economic interests and legal constraints. Coincidently, these factors made an environmentally sound decision possible. Previously marginalized groups such as tribes and environmentalists found a voice through pulling on PacifiCorp's interests to prove the economic benefit and legality of dam removal (Bonham 1999). Eventually, the power company indeed maximized income through a process originally assumed unprofitable. The focus on interests, coupled with a growing sense of welcome for drastic change, produced remarkable results. Though the area's ample supply of water may have uniquely eased the troubles of parting with a reservoir, the process holds continual relevance beyond both the river's geographical area and its historical moment of dam breaching.

Similarly, each side of the Gila River argument draws on nearly identical factors. On the part of the State, the temptation of millions of dollars drives an interest in diversion, while advocates for a free-flowing river use the would-be expense to locals as defense of their viewpoint (Paskus 2016; Allyson Siwik, personal communication 2016). As a result, the project has been scaled down but remains under dispute. Under requirements of law, six endangered species and the need for fish passage limit the possibilities for diversion (Walton 2015, "Gila River Diversion In New Mexico Pits New West vs Old"; Allyson Siwik, personal communication 2016). Yet, the State's legal

rights to additional water are, for some, sufficient reason to pursue the project. Conflicting common consciences underlie each side of the dispute, as those in the habit of consumptive water use come face to face with those establishing conservation efforts as routine (Allyson Siwik, personal communication 2016). Both sides feel the pressure of their drought-prone area to make some sort of change. Consequently, much of the community feels a heightened interest in water issues (Ibid.).

As locals of the Gila and White Salmon Rivers seem to be finding, the present is a fascinating time to engage in water management. Both regions owe the foundations of their water issues to the paradigms that have shaped the past century, and their relevance will indubitably extend far into the future. Both rivers tie into a web of interrelation and commonality stretching across the West and across the globe. Perhaps there has been no better time to embrace a renewed scrutiny while carefully balancing an environmental ethic with a sense of honor for existing systems upon which we rely.

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