

Harrington, K. and Cantor, A. 2024. Dam removal politics and unlikely alliances in the lower Snake River Basin. *Water Alternatives* 17(1): 1-19



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## Dam Removal Politics and Unlikely Alliances in the Lower Snake River Basin

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**ABSTRACT:** Dams, once considered catalysts for economic development in the Western US, are now being targeted for removal due to their adverse ecological and social outcomes. However, dam removal often remains controversial. In the Pacific Northwest, four dams on the Lower Snake River have long been criticized for their negative impacts on salmon. In 2021, the Columbia Basin Initiative was proposed, seeking to dismantle the dams in order to simultaneously improve salmon health, redesign Idaho's energy landscape, change transportation pathways, and protect other dams. Response to the initiative has been polarized. In this paper, we build upon political ecology and 'unlikely alliance' scholarship by examining the reactions to and points of tension around the initiative. We specifically focus on the viewpoints of key stakeholders who have shifted from their historically rooted alliances and views. We found that being in favour of dam removal in general was not necessarily enough to cause someone to support the Columbia Basin Initiative (and vice versa). In particular, stakeholders were split on views around legal provisions in the initiative that would limit the future utility of current environmental law. We contribute to political ecology and unlikely alliance scholarship by demonstrating that dam removal is a complex issue that can bring actors together in unanticipated ways.

**KEYWORDS:** Water governance, collaborative governance, unlikely alliances, salmon, dam removal, Snake River, Pacific Northwest, USA

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### INTRODUCTION

Dams, once considered necessary infrastructure for water management, have been the target of debate and, increasingly, removal in recent decades. Dam removal has proliferated in the Western United States (O'Connor et al., 2015; Bellmore et al., 2017) as dams' ecological and social impacts become increasingly evident. The changing attitudes towards dams inspired the 2014 documentary *DamNation* (Calder, 2015) and have led to notable removals of dams such as the Marmot dam on Oregon's Sandy River and Elwha dam in Washington (Fox et al., 2022). Recently, in summer 2023, the first of four Klamath River dams along the Oregon-California border came down after decades of negotiation (Gosnell and Kelly, 2010; PacifiCorp, 2020; Grable, 2023).

Yet, dam removal proposals remain highly controversial, as they impact different stakeholders in different ways. Dam removal debates are often framed as cost-benefit analyses between economic and environmental trade-offs: proponents of dam removal tend to focus on ecosystem degradation and Tribal marginalization (Chaffin and Gosnell, 2017) while opponents stress the economic benefits, energy production, and agricultural water use (Dorning, 2018). This cost-benefit approach frames the debate as a binary, where one is either for or against dam removal, with little room for nuance. Political ecologists and other scholars have more recently brought attention to the localized contingencies and politics of scale surrounding dam removal decisions, deconstructing this binary and demonstrating the complexity

of dam removal debates (Brummer et al., 2017; Chaffin and Gosnell, 2017; Magilligan et al., 2017; Drapier et al., 2021).

This paper adds to understandings of the complexities involved in dam removal and other socio-environmental decision-making processes by examining why some stakeholders have taken unexpected positions on a specific dam removal proposal. We focus on the Columbia Basin Initiative (CBI), a 2021 proposal to remove four dams in Washington State's Lower Snake River Basin. The Lower Snake River Dams, constructed between 1957 and 1975, have resulted in large scale habitat alteration, salmon species endangerment, and indigenous dispossession. The four Lower Snake River dams have been at the centre of controversy for over 30 years; the CBI represents the latest and most serious effort to remove them. The CBI was introduced by a Republican US Congressman from Idaho, Mike Simpson, who proposed a sweeping plan that included many elements beyond just dam removal. To better understand how a dam removal proposal can generate support and opposition in unexpected ways, this research asks the following questions: Why did some presumed supporters of dam removal oppose the CBI? Why did some presumed opponents of dam removal support the CBI? And why did other stakeholders maintain their positions or remain neutral on dam removal?

By examining these questions, we contribute to scholarship on 'unlikely alliances'. This area of research comes from geographers and other critical scholars of natural resource management (Grossman 2005; Hillis et al., 2020; Borgias, 2021) examining how social groups may come together to problem-solve in instances where historical disagreement has occurred. More specifically, this paper contributes to scholarship on unlikely alliances and political ecology by offering a place-based examination of a contested dam removal proposal, analysing how and why different groups have come to support or oppose the proposal.

#### **LITERATURE REVIEW: POLITICAL ECOLOGY, DAM REMOVAL, AND UNLIKELY ALLIANCES**

This research is situated within political ecology, which focuses on socio-environmental power relationships, scientific controversies, social movements, and change (Rocheleau, 2008; Robbins, 2012). Political ecologists have contributed substantially to the study of rivers as complex socio-ecological systems, given the challenges involved in meeting multiple and conflicting stakeholder needs, especially in the context of climate change and shifting values around how rivers ought to be used and who gets to make these decisions (e.g. Laborde and Jackson 2022; Boelens et al., 2023). Rivers, intertwining a variety of ecologies and economies as they flow from their headwaters to the sea, are shaped not only by hydrological factors but also by social power (Swyngedouw, 2009; Boelens et al., 2016). Political ecologists have used the hydrosocial framework (Linton and Budds, 2014) to illustrate how water is socially and materially co-produced as waterscapes and social relationships continuously form and transform one another. Rivers as socio-ecological systems are rooted in uneven social and political power; in the Western US context, this includes settler colonial water grabs, western water law, and dam infrastructure (e.g. Norgaard et al., 2011; Curley, 2021; Randell and Curley, 2023).

Around the world, dams have significantly modified hydrosocial systems, affecting approximately two thirds of the world's rivers (Grill et al., 2019) and resulting in significant impacts on aquatic species along with loss of Tribal lands and foodways (Randell and Curley, 2023). Political ecologists have written about how dams represent and reinforce dominant systems of modernity and neoliberalism (Kaika 2006; Boelens et al., 2019). While dams are frequently justified by narratives of progress, modernity, and development, these narratives are frequently challenged by those who point to their socio-ecological impacts (Fox and Sneddon, 2019). Dam removal has gained traction in recent decades, and thus the politics, debates, and complexities of dam removal have been the subject of study by political ecologists (e.g. Grabowski et al., 2017; Sneddon, Barraud, and Germaine, 2017; Sneddon, Magilligan, and Fox, 2017). Applying a political ecological framing to the context of the Lower Snake River Basin, today's landscape can be seen as a direct outcome of dam construction, made possible via dominant social forces

that define the Snake River's best uses as hydropower, large-scale agriculture, and transportation – at the expense of Indigenous existence, water use, and foodways.

### **Collaborative governance and unlikely alliances**

Scholars seeking to understand complex resource management problems in the Western US have studied the collaborative governance of natural resources (Hooper, 2005; Newig and Fritsch, 2009; Emerson et al., 2012; Charnley et al., 2014; O'Donnell, 2018; Sullivan et al., 2019). The collaborative governance model emerged in response to previous failures of government agencies in recognizing nuances at the community level (Fung and Wright, 2001; Ansell and Gash, 2008). While collaborative governance seems effective and desirable in theory, critical scholars have identified numerous shortcomings and barriers to participation, including requirements for time and resources, replication of traditional power dynamics, and the pursuit of low-hanging fruit that can amass broad agreement and perpetuate dominant interests (Andrews et al., 2018; Özerol et al., 2018; Sullivan et al., 2019; Hillis et al., 2020; Vineyard, 2021).

Within collaborative governance literature, 'unlikely alliances' is a specific thread of study. Unlikely alliances, sometimes referred to as "strange bedfellow coalitions" (Phinney, 2017), are partnerships amongst fundamentally adversarial stakeholders who may have been at odds over past resource governance issues but organize around a common objective and take advantage of changes in power (Hillis et al., 2020; Borgias, 2021). Scholars have sought to understand why unlikely alliances occur, if they will last, and if they operate similarly across natural resource conflicts (Grossman, 2012, 2017; Hillis et al., 2020; Borgias, 2021). This scholarship suggests that despite different or opposing backgrounds or perspectives, there are areas where different stakeholders can agree and work together to achieve a shared goal or vision to address common concerns (Grossman, 2017). Scholarship by Grossman (2012, 2017) explains how unlikely alliances may arise: they tend to happen when conflict is rooted in place, likely due to shared values and witness to environmental degradation, when there is a common enemy to focus on directly instead of on other groups, and when there is a common goal between stakeholders. However, even if these identifiers are present, resolutions can still fail, as every case is unique (Grossman, 2012).

Additionally, in considering what "novel aspects of collaboration occur when unlikely partners come together", Hillis et al. (2020) found that unlikely alliances commonly occur out of a "crisis", when there is a history of unlikely alliances, and when there is appropriate leadership present. A crisis that leads to alliance-building may be environmental or social (Olsson et al., 2007) and may be felt by all the involved actors or by only one involved actor (Emerson et al., 2012), who has no other choice but to align (Grossman, 2017). Emerson et al. (2012) found that leadership is an essential driver to the integrative framework for collaborative governance, wherein the leader advocates for a particular solution and builds trust by connecting people and their alternative ways of management (Hillis et al., 2020). Hillis et al. (2020: 12) proposes that a better understanding of how and why unlikely alliances form can enable groups to leverage such alliances for "mutually beneficial results".

In this paper, we build upon political ecology and unlikely alliance scholarship to understand dam removal politics and nuances by examining the perspectives of a diverse range of actors involved in the Lower Snake River dam removal controversy. We specifically focus on understanding the viewpoints of key stakeholders who have shifted from their historically-rooted alliances and views. In doing so, we contribute to a better understanding of how and why unlikely alliances might occur around dam removal.

## BACKGROUND: THE LOWER SNAKE RIVER DAMS AND THE CBI

The Snake River<sup>1</sup> is the Columbia River's largest tributary, contributing roughly 40% of its flow (Slaughter, 2004). The four dams in question, collectively termed the Lower Snake River Dams, are in the southeastern corner of Washington (Figure 1): Ice Harbor, Lower Monumental, Little Goose, and Lower Granite. Of all the dams in the Columbia River System, the four Lower Snake River dams are commonly understood to be the most harmful to salmon, and their removal is understood to have the most potential benefit to the health of the entire river system (NOAA Fisheries, 2020).

The four dams are part of a set of 31 dams that collectively drive the Federal Columbia River Power System.<sup>2</sup> The Lower Snake River dams were built with the capacity to produce 3000-4000 megawatt hours of electricity per year (BPA, 2016), about 4% of the Northwest's electricity (Blumm and DeRoy, 2019), but for the past 17 years, their annual production has been only ~1000 MWh because there is too little water in the Snake River to produce more due to overallocation and climate change (BPA Fact Sheet, 2016; BPA News, 2021; Save Our Wild Salmon, n.d). They also support irrigated agriculture in the Snake River Basin, where water has been diverted for irrigation since the 1860s (Maret and Mebane, 2005; Chance et al., 2018). According to the US Army Corp of Engineers, 40% of US wheat is transported through the Columbia River System, valued at US\$3 billion per year (USACE, 2022).

The Snake River provides critical habitat for five species of anadromous fish: Chinook (both spring/summer and fall varieties), coho, sockeye, steelhead, and Pacific lamprey. Over the past several decades, salmon and steelhead populations in the basin have declined substantially and were listed under the Endangered Species Act in the 1990s (Washington State, 2020). Puget Sound Orca populations, dependent upon salmon as a major food source, have also declined notably in recent years (Weiler et al., 2018; Hilbert-Wolf and Gerlack, 2022). The decline of Pacific salmon and steelhead is the result of overharvest, habitat degradation, hatchery stock influences, oceanic warming, and, most notably, hydroelectric dam development. Dams block juvenile salmon from reaching the sea where they grow into adults, and adult salmon are blocked from swimming upstream to spawn (Loomis, 1996; Lopardo, 2020). Additionally, dams segment habitat, hinder nutrient delivery, disrupt natural flow regimes, and increase river temperatures, which decreases dissolved oxygen. Minimizing the mortality and migration stress of juvenile salmon (smolts) that encounter dams is at the centre of salmon mitigation efforts in the Columbia-Snake River Basins (Simpson, 2021; Skalski et al., 2021).

Indigenous communities in particular have been negatively impacted by dam development. Irrigation and hydroelectric expansion have been justified as what is 'best' for the settler majority of society, without recognition of the intergenerational trauma associated with the loss of land, water rights, and lifeways for Indigenous communities. The control of water via national policies like the Federal Power Act and regional hydropower development can be considered acts of Indigenous dispossession and colonization. Hydropower dams have marginalized native peoples (Slaughter, 2004; Norgaard et al., 2011) and continue doing so via displacement, unequal water rights, and diminishment of culturally important foods and access to traditional fishing sites. While other First Foods (Quaempts et al., 2018) are also affected by a controlled river system, the cultural and spiritual impacts of salmon decline is the most visible and cannot be overemphasized (Washington State, 2020). Specifically, declines in the

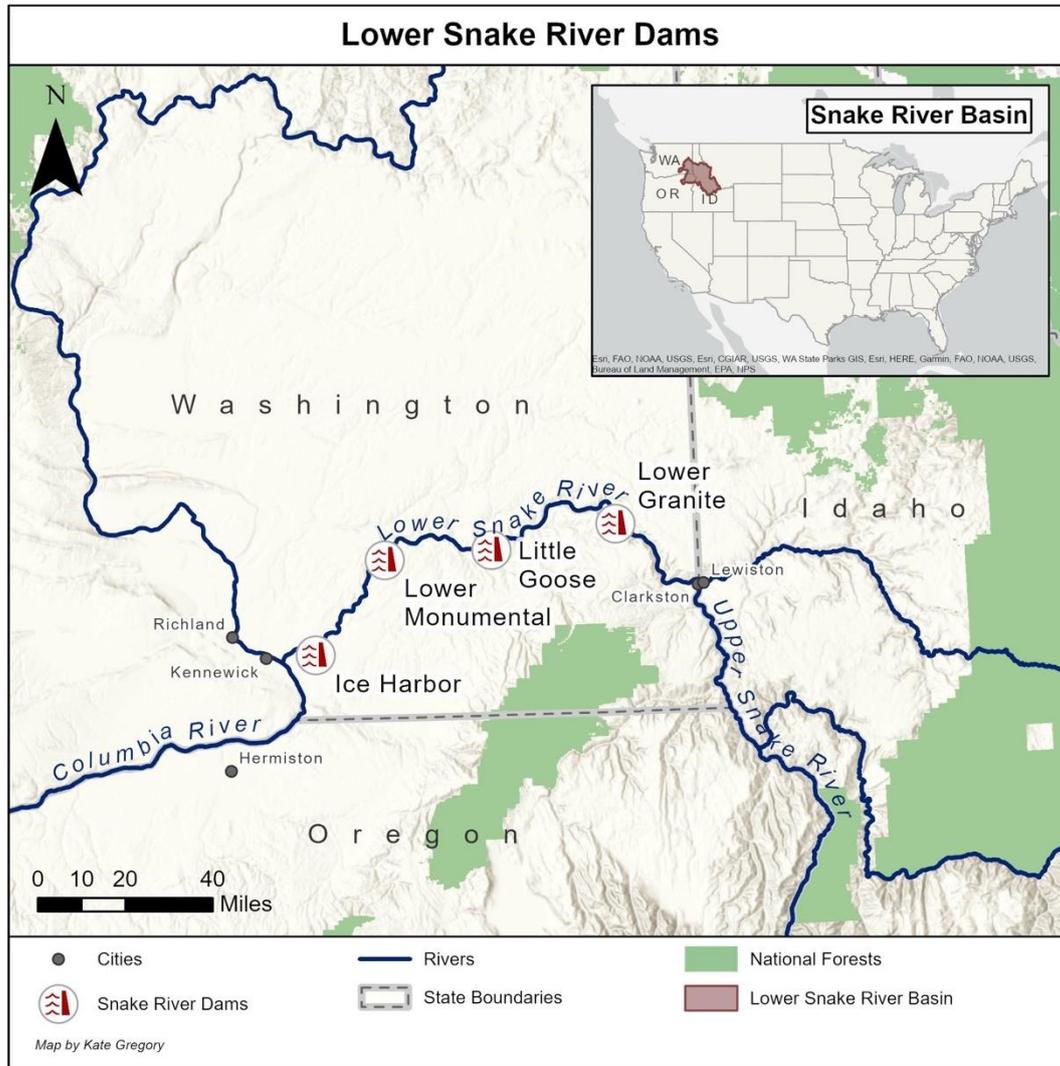
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<sup>1</sup> Early colonizers named the Snake River based on the misinterpretation of Shoshone sign language. Since salmon are central to Shoshone heritage, it is said that they identified themselves by creating an 'S' with their hands to describe swimming salmon: thus, colonizers named the river the Snake (Palmer, 1991).

<sup>2</sup> The US Army Corps of Engineers operates the four Lower Snake run-of-river dams and locks that were developed primarily for navigation and hydropower. Three federal agencies, the Bonneville Power Administration, the US Army Corps of Engineers, and the Bureau of Reclamation, have worked for several decades in consultation with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service and state and tribal fishery managers, who manage the ecosystems around the Snake River dams, to promote the maintenance and recovery of salmonid populations in the region (Skalski et al., 2021).

abundance and productivity of wild Snake River Chinook salmon and steelhead populations have severely impacted the Nez Perce Tribe’s ability to practice ceremonial and subsistence fishing (ISRP, 2022).

Figure 1. Map of the Lower Snake River and the dams considered for removal.



Map created by Kate Gregory

Over the past 30 years, the Northwest has spent over \$17 billion on fish recovery efforts with little to no success in restoring endangered fish populations. Between the 1800s and 1930, the salmon and steelhead populations in the Columbia River Basin dropped by 50% due to habitat degradation and overharvesting. After mainstem Columbia River dam construction, runs declined further to just 10% of historic levels (Quaempts et al., 2018), despite a large-scale hatchery program and the most political and economic support that salmon restoration has ever had (Hirsch, 2020). Tribal fishing opportunities remain very limited due to poor salmon and steelhead returns in the Snake River. The continuing decline in salmon populations is the main driver for the calls for removal of the four Lower Snake River dams.

## The Columbia Basin Initiative

The four dams in question are federally owned, which means their removal requires Congressional authorization. In 2021, US Congressman Mike Simpson (R-ID) proposed a plan to remove the four dams, titled Congressman Simpson's Energy and Salmon Concept or, more commonly, the Columbia Basin Initiative (CBI). The CBI was initially developed to be included in President Biden's 2021 Infrastructure Package. It was written as a legislative vehicle, but it is not written as a bill; it is only a proposal.

Prior to its debut, Congressman Simpson held ~300 meetings with regional stakeholders, including elected officials, Tribal representatives, environmental advocacy groups, scientists, and others. The resulting proposal – with a price tag of roughly US\$33.5 billion – includes physical removal of the four dams and their sediment deposition, along with a host of other components to mitigate agricultural and transportation impacts, enhance recreational opportunities, and re-imagine the regional energy landscape. This plan differs from many other dam removal plans in the scope of its support for other industry sectors (e.g. agriculture, shipping, energy). The goal, Simpson claims, is to communicate that the Snake River Basin is experiencing an "unsustainable status quo", and that necessary solutions are "larger than salmon versus dams" (Simpson, 2021).

The CBI also involves a suite of legal and regulatory provisions. Under the CBI, all other Federal Energy Regulatory Commission (FERC)-licensed dams in the Columbia River Basin (CRB) will receive an automatic 35-year extension of licensing. Furthermore, under the CBI, all litigation related to anadromous fish under the Clean Water Act (CWA), the Endangered Species Act (ESA), and the National Environmental Policy Act (NEPA) for all FERC-licensed dams in the CRB will be halted immediately. In place of litigation, voluntary watershed working groups will be created between agriculture, conservationists, and Tribal entities. Participating agricultural interests within the Columbia Basin will receive a 35-year exemption from all CWA, NEPA, and ESA lawsuits (Simpson, 2021). Finally, after dam removal, fish and wildlife management would be turned over to state and Tribal managers in a joint fish and wildlife council, making Columbia Basin tribes and states equal partners in fishery management.

As of the writing of this paper, the Columbia Basin Initiative still stands as a written proposal, but it was not successfully included in the passing of President Biden's Infrastructure Package in 2021.

## METHODS

The research is based on qualitative analysis of over 50 media articles and 22 semi-structured interviews.

Media analysis included collection and analysis of over 50 published online news articles, blogs, and podcasts over the six months between the rollout of Congressman Simpson's Columbia Basin Initiative in February 2021 and the passage of President Biden's Infrastructure Package in August 2021. Media articles representing a diverse range of perspectives and viewpoints were found by searching for 'Columbia Basin Initiative', 'Mike Simpson', and 'Snake River dams'. Articles, blogs, and podcast transcripts were screened for relevance, novel content, and accuracy before being catalogued and coded. Coding focused on stances on the CBI by key players such as non-profit agencies, advocacy groups, industry leaders, and Tribal entities. Media content was also used to identify events and key concepts to inform subsequent interviews.

Interviews (Table 1) initially focused on stakeholders mentioned in media articles, then the sample was expanded through snowball sampling. The focus was on organizations and groups actively taking part in decision-making (Grossmann, 2012) whose work involves the geographic scope of the Columbia-Snake River Basin. Tribal nation representatives were also prioritized as participants, as they are key stakeholders and leaders of dam removal efforts who hold unique interpretations and experiences. Interviewees held a diverse range of expertise including wildlife, conservation, and/or fisheries biology; natural resource management; environmental law and policy or political science; finance and management; and engineering.

Table 1. Interview participants by primary interest group.

Interest group	Number of participants	Pseudonyms used and stance on Columbia Basin Initiative (Undecided <sup>0</sup> ; Against <sup>-</sup> ; For <sup>+</sup> )
Tribal Entities	3	Lane <sup>+</sup> ; Dylan <sup>+</sup> ; Ryan <sup>+</sup>
Environmental Advocacy Groups	12	Amanda and Jayse <sup>+</sup> ; Chris <sup>+</sup> ; Cody <sup>+</sup> ; Jessica <sup>+</sup> ; Joe <sup>+</sup> ; Melissa <sup>+</sup> ; Robert <sup>+</sup> ; Derek <sup>-</sup> ; James <sup>-</sup> ; Kyle <sup>0</sup> ; Patrick <sup>0</sup> ; Peg <sup>0</sup>
Irrigator Representatives and Farmers	3	Jack <sup>-</sup> ; Kenny <sup>-</sup> ; Sam <sup>+</sup>
Navigation Representatives	1	Alison <sup>-</sup>
Recreational Advocacy Groups	2	Ben <sup>-</sup> ; Phil <sup>+</sup>
Energy Representatives	1	Luis <sup>-</sup>

Interviews were conducted by the first author over Zoom in the summer of 2021 and lasted between 30 and 90 minutes each. To analyse the data, interview recordings were transcribed via Otter.ai and imported into MAXQDA. Pseudonyms were used for each participant to mask identifying information, and neither do we use the names of specific organizations, in order to protect privacy in a small community. Coding was based on an inductive thematic approach (Braun and Clarke, 2006). Each interview transcript was coded based on terms and phrases that interviewees themselves used to define social, political, and ecological aspects of the Columbia Basin Initiative from their perspective. To specifically examine the framework of unlikely alliances, sections of transcripts discussing relationships amongst groups were closely examined, using research memos to link themes.

We initially grouped stakeholders into three main categories based on their position in media articles and organizational websites: supportive of the CBI; opposed to the CBI; or undecided. At the beginning of each interview, we confirmed the participant's stance on the CBI. Two additional categories were later added (for a total of five; see Findings section below) to specifically account for the viewpoints of stakeholders who were supportive of dam removal in general but opposed to the CBI and vice versa.

## FINDINGS: OPINIONS AND ALLIANCES ON SNAKE RIVER DAM REMOVAL

### Complex opinions on dam breaching

Regardless of their opinions on dam removal, nearly all interviewees expressed overwhelming agreement that salmon and steelhead populations are in trouble and need to be 'saved'. That said, stakeholder opinions differed strongly on *how* to save salmon, and what strategies, trade-offs, and compromises should be used to achieve their survival. Through the interviews with stakeholders, we identified five distinct positions, making the issue more complex than a binary of pro- or anti-dam removal. The five positions include: 1) supportive of dam breaching and supportive of the CBI; 2) supportive of dam breaching but opposed to the CBI; 3) neutrality or indecisiveness; 4) opposed to dam breaching but supportive of the CBI; and 5) opposed to dam breaching and opposed to the CBI.

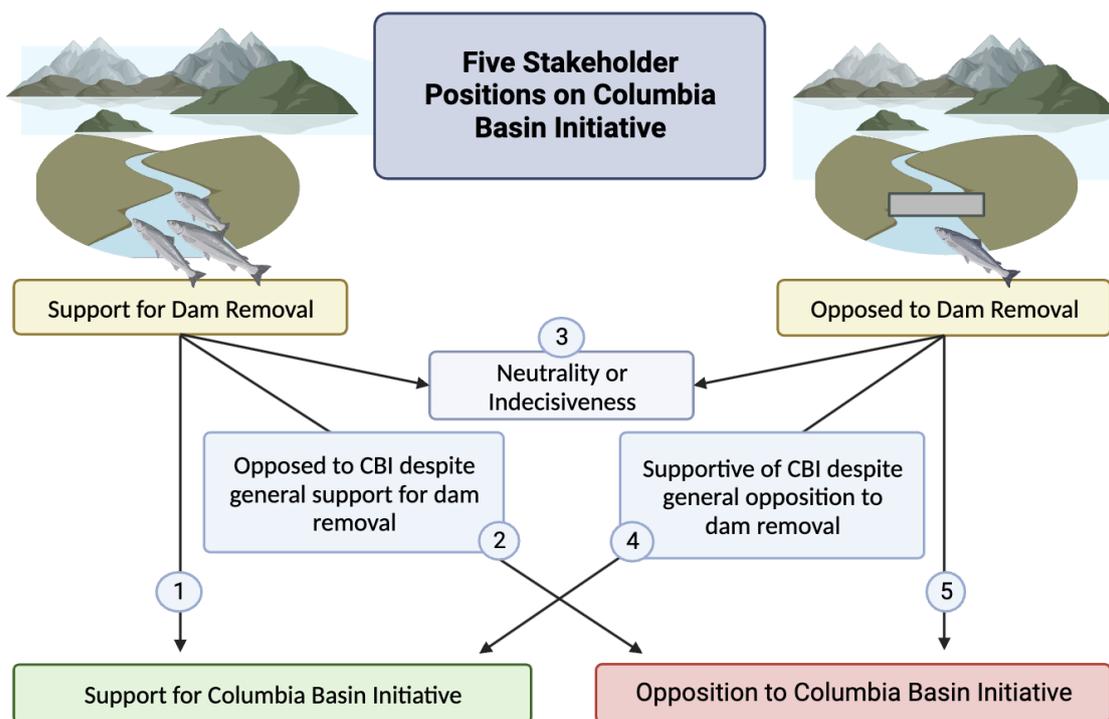
As Figure 2 shows, to be generally in favour of dam breaching was not enough to induce someone to support the CBI, nor was being generally opposed to dam breaching necessarily enough for someone to oppose the CBI. As we explore in depth in the rest of the paper, some environmental advocacy groups did not support the CBI because of the ban on future environmental lawsuits under the CWA, the ESA, and NEPA. On the other hand, some groups supported the CBI despite general opposition to dam

breaching because they recognized the crisis at hand and saw no better options. Overall, the CBI included a complex set of trade-offs that some groups considered a timely compromise but were viewed by other groups more cynically as an attempt to forgo regulatory enforcement.

Many of the traditional arguments in support or opposition of dam breaching were present. Participants in favour of dam breaching often pointed to the ecological and social impacts of dams: that dam infrastructure hinders salmon survival and represents colonialism. Participants who were against the CBI and dam breaching stressed the dams’ economic benefits (such as hydropower generation and agricultural advantages like water storage and conveyance infrastructure) and proposed alternative methods for salmon recovery like habitat restoration, water infrastructure maintenance, and changes to national climate policy. Yet, the research showed that dam removal debates are more complex and nuanced than this dichotomy might suggest.

In the rest of this section, we analyse different positions on the CBI taken by our participants. We do not go into depth on Position #3, indecisiveness or neutrality: stakeholders who fell into this category generally felt they did not have enough information, were waiting to see how other groups positioned themselves, or were waiting to see what the plan looked like when it was written into a bill.

Figure 1. The five stakeholder positions on the Columbia Basin Initiative.



Created in **BioRender.com**

*Position #1: Why did some supporters of dam breaching support the CBI?*

Many environmental NGOs in this study supported both dam removal and the CBI. The CBI was seen as the clearest path to removing the four dams that have, for so many decades, been responsible for the decline of salmon populations. Joe, an environmental advocate, stated, "When we have the sole

Republican from a state like Idaho willing to put something of this magnitude in order (...) it's literally a once-in-a-lifetime, generational opportunity. [It] may be the only opportunity while fish are still around".

Stakeholders in the Snake River Basin largely acknowledged that 'times have changed', both ecologically and socio-politically, given the context of a coupled climate and species extinction crisis. Within this context, those who were in favour of dam breaching found plenty of fertile ground to support their arguments and saw the CBI as a way to bring others on board. We explain some of these perspectives here.

First, supporters of dam removal saw the CBI proposal as a unique political opportunity. Jessica, a director for an environmental advocacy group, explained that "[for] the first time in history, we have a member of Congress explicit about breaching and removing the lower Snake River dams (...) ironically, he's a Republican from Idaho". Simpson's initiative to produce the CBI reverberated amongst interviewees because he's both a Republican *and* a congressman. Because Republicans are frequently stereotyped as being less enthusiastic about environmental threats and policies, this makes Simpson's effort to address the fate of salmon and steelhead significant for stakeholders. In this way, Simpson's leadership can itself be seen as an 'unlikely alliance' with environmentalists and others who have advocated for dam removal for decades.

The CBI was seen by some as a keystone moment in alliance building, bringing together state, federal, Tribal, and NGO collaborators from across the political spectrum to craft it. In particular, the CBI has been met with large approval by Tribal communities: 60 Tribal Nations of the Affiliated Tribes of Northwest Indians passed a resolution to support the CBI (Nez Perce Tribe, 2022). A Tribal Nation respondent added, "What really [is] so important about Simpson's effort is that he goes out of his way to make the politics fit. There are benefits to so many constituencies that aren't really required to breach the dams". These constituencies are bringing diverse sectors of the region's society together to configure a novel transformation.

Dylan, a Tribal member and policy analyst, noted the growth of inter-tribal relationships being built around salmon recovery, which he linked to the crisis of increasing climate change. Previous decades did not foster the same amount of support for change and unity that exists today, he explained:

It's difficult to get Tribal groups into the same room, but for the first time in a long time, about 20 years, 15 or 20 of us are now in the same room building relationships, elected officials are shaking hands (...). The impetus for all of this is climate change (...) [it's] driving ocean conditions, it's driving reservoir levels, it's driving river flow [and] river temperatures (...) so there's a lot of momentum to address this at a Tribal level, because we see this as kind of the first year of a long century in front of us. Things aren't going to get necessarily better, but maybe we can ameliorate the kind of the worst effects of climate change if we act now.

Robert, a conservation NGO representative, agreed, indicating that the CBI had amplified negotiation specifically amongst Tribal communities:

It is unquestionable that [Simpson] became the catalyst for forcing the issue into the public arena (...) I think that added additional pressure along with the sustained leadership of the tribes. I mean, the tribes have been huge and (...) critical. The Nez Perce has been a strong and consistent leader, but it has also included the Umatilla Tribe in Oregon, the Yakima Nation, and the Puget Sound tribes, that often don't pay attention to the Columbia River issues, have become involved because of the linkage of Snake River salmon to the southern resident killer whale population – all of a sudden, they have a fish in this fight.

The support from Tribal leadership stands out as particularly important. Regional policy makers have historically not listened to or legally supported local Tribes who have consistently called attention to the decline of salmon species. Instead, local Tribal entities have partnered with environmental advocacy groups, allowing for more strength in numbers. Melissa, an environmental advocate, described:

[The Shoshone-Bannock Tribes] have been the ones taking the lead on this. I mean, it was the Shoshone Tribe that helped get the ESA endangered threatened listing for sockeye salmon; in November we're going to see the 30-year anniversary of that listing. And these species haven't come close to being recovered.

Supporters of the CBI emphasized that despite salmon and steelhead's legal protection under the ESA, the fish are still endangered. Some perceived litigation-based approaches as a failure and, as such, sought alternative approaches. Dylan, a policy analyst and Tribal member quoted above, explained that what can be achieved in a courtroom involves only temporary, incremental fixes that do not address the underlying causes of the problem – the dams themselves:

In the legal community that deals with salmon recovery, we call it 'gavel to gavel management', meaning that we're managing from one case to the next. And it's been that way since 1993. Over the past 28 years, every single time, the agencies have come up with a plan that leaves the dams in place and fails to meet the standards of either the Endangered Species Act, the Northwest Power Act, or the Clean Water Act. So, we're never able to get a plan through a judge, mostly because the presence of the dams is the single greatest limiting factor to salmon recovery (...). There is no mechanism in law to breach a dam; only Congress can breach those because they were congressionally authorized. So, what you've seen over the past 28 years are a bunch of what we call 'Band-Aid Measures'; they address symptoms of the operations of the system, but they never address the underlying cause of the decline of salmon, which is the presence of the dams.

Dylan explained that litigation does not foster space for transformational plans for species recovery. This makes progress slow and insignificant. Likewise, Phil, representing recreational interests, stressed that when there are winners and losers in a court room, fish become the losers:

You litigate to win, and the fish end up losing in that situation, and the community ends up losing, because we forego any opportunity to leverage the collaborative approach to resource decisions.

From this position, dam removal is the only answer to fish recovery. The legal approaches that have been previously used were seen as unequipped to handle the issue. The CBI – despite its inclusion of provisions that ban environmental lawsuits (described earlier in this paper) – was seen from this perspective as the only way to move towards agreement on dam removal.

### *Position #2: Why did some presumed supporters of dam breaching oppose the CBI?*

Other stakeholders from environmental NGOs that are generally supportive of dam breaching took a different stance. Several interviewees opposed the CBI's efforts to squeeze everyone's interests into one proposal. While they generally support dam breaching to achieve the goal of saving salmon, they oppose the CBI for two primary reasons: 1) the legal moratorium on enforcement of environmental regulation written into the CBI and 2) a perceived lack of accountability for industries.

This set of stakeholders broadly argued that within the CBI there was a lack of accountability for the industries that cause environmental degradation. For example, some participants pointed to the significant concessions made to industries like agriculture and shipping, which have historically benefited from the harms done to the river by dams, calling it a buyout or a political stunt that gives aid to the industries responsible for the Snake River's peril. Ben, who was opposed to the CBI, said, "The proposal I think became unwieldy in that everyone who wanted something, got it".

The most problematic concession was the CBI's inclusion of a 35-year moratorium on environmental litigation under the CWA, the ESA, and NEPA. This ban on environmental lawsuits emerged from the political approach to crafting the CBI, which took great pains to 'make everyone whole'. In other words, Congressman Simpson wrote the CBI in a way that attempted to serve the interests of all affected stakeholders and compensate for any losses. The moratorium on environmental lawsuits written into the CBI served as a compromise in order to bring agricultural interests on board.

However, the moratorium raised concerns from environmental groups whose main missions are to enforce the CWA, NEPA, and the ESA. In our research, many of the interviewees from environmental NGOs who opposed the CBI were trained environmental lawyers; many advocacy groups in the Pacific Northwest were founded by attorneys who use environmental regulation as a primary tool for solving complex issues. The CBI's moratorium on environmental litigation was thus seen as a deal breaker.

For example, James, from an NGO, pointed out:

Salmon recovery needs a holistic, comprehensive solution. There are many threats to salmon (...) but the lawsuits – litigation – have been one of the primary drivers to improve most of the on-the-ground conditions for the species over the years.

Views on the importance of environmental litigation varied widely. For example, Patrick, a senior attorney who represents an undecided group on the CBI, explained that "litigation is an important tool in the toolbox. But what fish need is a river, not another 20 years of ESA litigation". Yet, the quality of the river is precisely what groups defending environmental laws are aiming for. These groups believe that withholding the right to litigate is counterproductive and risky. James, quoted above, explained:

The way Simpson's proposal is structured, it trades the removal of the dams on a predicate of waiving the Endangered Species Act, Clean Water Act, and other interim environmental laws for periods of decades or more, throughout the entirety of the Columbia River Basin, which would not only be counterproductive to the Snake River being recovered, but would undermine conservation of endangered species throughout the Pacific Northwest.

Some stakeholders believe that it's not the laws that are unproductive, but the agencies that enforce the laws. Ben, an interviewee from a recreational NGO who opposed the CBI, stated, "We have great laws in the books, but the agencies don't bother with applying them". The nearby Klamath dam removal was often mentioned as an example of how to accomplish dam removal without sacrificing future environmental regulation. Ben noted that "the Klamath dams are going to come out without that agreement, or some people having to give up the ability to go to court", making these groups hopeful that the same can be accomplished in the Snake River Basin. From this perspective, there is a weight of responsibility: species should not suffer because of the failure of environmental groups to advocate for a better proposal that respects environmental law. James considers this stance a noble one, explaining, "We are like the keeper of the flame for the ESA; [we] will defend it at all costs".

Ben and James represent the disagreement within the environmental community over the path to achieving dam removal, rather than over the end goal of a free-flowing river. While dam removal was broadly desirable to the environmental community, the trade-offs involved in the CBI made the proposal unacceptable to some like James and Ben. Moreover, each mentioned that watching other organizations line up in support of Simpson's proposal propelled their groups to stand up in opposition, to defend environmental laws that were once difficult to pass.

This view contradicted that of others who expressed interest in finding a path to salmon conservation that did not rely on litigation, driven by the paradox that litigation has been successful but has not changed the status of salmon's ongoing ESA listing. For example, Jayse, who works for a salmon conservation group in favour of the CBI, explained:

Litigation is how these salmon wars have been conducted for so long. Since the 90s there's been something like five or six different court cases, all of which environmentalists or tribes have won. But that has not resulted in any way much of a significant increase for salmon at all.

From Jayse's perspective, winning in the courtroom is not enough for endangered species. He stated that litigation is not a solution to species conservation, but rather an effective way to draw attention to the issue and delay extinction.

These points of contention around the role of environmental law show that the environmental community does not operate as a singular unit. Some interviewees claimed that Congressman Simpson may have taken their support for granted when drafting the proposal. For example, Derek and Ben, both opposed to the CBI, represent groups that have stated that Simpson failed to meet with them. Robert, a regional director for a national environmental NGO, explained:

The environmental community is no more of a monolith than the labour community (...) or other communities. If you don't know much about the communities and you're on the outside looking in, they all look like a monolith. The closer you get to it, [the more] you realize it's an ecosystem with many diverse pieces to it.

In this case, the environmental community was clearly not a monolith, and the diverse viewpoints on trade-offs, in particular the ban on lawsuits under the CWA, the ESA, and NEPA, led some to oppose the CBI despite their support for dam removal more broadly.

#### *Position #4: Why did some presumed opponents of dam breaching support the CBI?*

Most members of the interest groups that have historically benefited from dams (irrigation, agriculture, navigation, energy, etc) were opposed to the CBI despite the many industry concessions, because they did not want to see the dams removed. However, one interviewee, whom we have called Sam, provided an alternative perspective, which we found valuable and thus include in our analysis as an important way of understanding different viewpoints on the issue. (This interviewee's views, as we explain later in this section, were also backed up by media sources.)

Sam, a board member for an irrigator association, was the sole interviewee whose views had changed from opposing dam removal to supporting the CBI. When asked when his association came to support the CBI, he stated, "There's no other choice", even though "the association does not support dam breaching. That's been our position since '92, but we realize that the current situation is much different now". Sam explained that he had shifted from being categorically opposed to dam breaching, given his priority of defending irrigator interests, to supporting the CBI because the situation has changed.

Sam viewed a plan like Simpson's as the only effective way to get out of a cycle of unending environmental litigation over dams and salmon. He described "an infinite game of trying to prove that you're doing [sic] measures that are going to eliminate the jeopardy standard for risk for extinction (...) and as you can see over the last 30 years, that's a continual 'bring me a rock' process" (referring to a parable in which every measure brought to the table is deemed inadequate to achieve the goal). Sam inferred that satisfaction might never be achieved. He also saw a lack of recognition for the importance of industries like his under the ESA, which only looks at "the federal action that would have the greatest survival impact. It's totally blind to economic impacts". Sam felt that his group has a responsibility to bring awareness of the economic values of his constituents, but that times have changed, and his industry must adapt and participate in envisioning the future of the river:

We are firmly rooted in the idea that there is going to be change on the Lower Snake River. We don't know exactly what it's going to look like. We would certainly like to have some influence on it.

In other words, Sam had accepted that the dam breaching conversation is not going away and that acknowledging that sooner rather than later will help focus attention on potential solutions that his industry can contribute to.

This perspective was echoed in media sources. For example, in an article titled, "Farmers and salmon advocates agree: It's time to talk about the Snake River dams", Helmer (2020) wrote how stakeholders across the region, particularly farmers who have been dependent on the dams for barge transportation, are "taking the long view"; they are realizing that crises faced today must be addressed, and if

stakeholders can approach solutions collaboratively, there's a higher chance of them getting more of what they want in the process.

Sam was also aware that climate change will increasingly impact water levels, temperatures, and food systems, so it is in the best interest of irrigators to engage with these circumstances. Sam simply wanted to remain a part of the conversation, and he claimed that honesty is the best way to accomplish lasting partnerships. In alignment with Indigenous perspectives, Sam noted:

I think that when a Nez Perce Tribal leader looks at Lower Granite dam, what they see is this big white piece of concrete that was put in there by a white culture. And that concrete is viewed as an affront to their socio-cultural system. It represents a taking of what they consider to be their assets, whether it's water or fish or land and (...) property rights (...). We've spent a lot of time reviewing what they say and paying attention to it. And we will say that this is far more a socio-cultural problem.

The thought process Sam went through after speaking with the Nez Perce members marks a shifting recognition of Indigenous justice that is advancing the dam removal debate, serving as a potential foundation for future unlikely alliances. This irrigator had historically represented anti-dam breaching views as a beneficiary of dam infrastructure but had acknowledged that the dams represent colonization and injustice to the Nez Perce. While he is one person and does not represent all irrigators in the entire Columbia-Snake River Basin, Sam reveals a changing attitude and openness towards solutions that involve collaboration with dam removal interests.

*Position #5: Why did opponents of dam breaching also oppose the CBI despite the proposal's support for industry?*

Finally, there are those opposed to dam removal who were not swayed by the arguments put forth by Simpson and the CBI. In particular, hydropower representatives are opposed to dam removal. In recent years they have couched this opposition in terms of climate policy, arguing that the dams, as a part of the Columbia-Snake River power system, are crucial in meeting regional emissions targets. Luis, a hydropower representative, explained, "If it is the changing ocean [temperatures] that's really hammering salmon populations, then eliminating a carbon free resource for the region is not a good plan". Luis continued:

In a world of climate change, having dams may be important. According to the forecast for this region, you're going to have more precipitation falling as rain in the winter instead of snow (...) but if that goes away, then there's a chance for certainly more flooding in the winter, and then less and less water available for the summer. And I'm not speaking for the Lower Snake River dams specifically but just hydropower dams in general (...) the large storage dams are going to play an important role in ensuring that there's enough water in the season.

Luis's view represents the idea that the climate crisis is the perfect reason to rebrand the need for hydropower and, in doing so, maintain the status quo. However, many interviewees did not subscribe to this hydropower rebrand and instead advocated for a transformation in times of crisis. Phil, an interviewee from a recreationally focused NGO, discussed how maintaining the status quo in the name of clean hydropower energy production on the Snake River may limit the region's ability to adapt to climate change:

Someone told me there's no better bureaucrat than to keep the status quo. Right? That's their job, their job is not to change (...) there's no incentive for them to take any risk. So, you know, how do we change these systems? And deal with it? I will tell you, it always takes a crisis, and we're in crisis mode. I think we're truly seeing the crisis (...) of how fish are on the road to extinction. So, we've got to start making changes, big changes.

Thus, the idea of crisis was leveraged in different ways by those who supported and opposed dam removal. The salmon extinction crisis was a key reason for supporters of dam removal, while the climate crisis was leveraged by hydropower representatives as a motivation for maintaining the status quo.

## DISCUSSION AND CONCLUSION

The main goal of this research was to understand the complexity of views on dam removal in the Lower Snake River Basin. We explored how and why different Columbia River Basin stakeholders are offering support for or opposition to the Columbia Basin Initiative, and how their approaches might serve as bases for unlikely alliances. The research showed that being in favour of dam removal was not necessarily enough to make a stakeholder support the CBI and vice versa.

Previous literature has identified key ingredients to create unlikely alliances: first, they often occur in the presence of a crisis (Hillis et al., 2020), leaving some sectors "no other choice" than to align (Grossman, 2017); and second, these alliances are the result of defined leadership (Emerson, 2012; Hillis et al., 2020). Both factors held true in this study. First, we observed that the Lower Snake River Basin decision-making occurred within compounding crises, including the salmon extinction crisis that has been ongoing since the 1970s and the more recent climate crisis. Given the severity of these crises, existing toolkits were seen by many as inadequate to address the contemporary problems. Existing environmental laws were viewed as valuable and necessary for many outcomes like keeping salmon and steelhead from going extinct, but the implementation of these laws has not succeeded in species revitalization. Second, we saw the role of defined leadership in this study. The action by Congressman Mike Simpson (R-ID) to craft the CBI was seen as historic and perhaps a prime example of unlikely alliance formation in and of itself. The support of the 60 Tribal Nations in the Affiliated Tribes of the Northwest was also a notable example of inter-governmental leadership, and the CBI was viewed as an important move towards equitable Tribal involvement in fishery management.

The case illustrates the importance of considering nuance and variety of opinion when seeking to build alliances around controversial issues. The CBI's attempt to 'make everyone whole' was seen as a way to bring recalcitrant actors on board, but problematic in that it overpromised or neglected certain stakeholders. Simpson's failure to meet with certain NGOs (as noted by the environmental stakeholders who opposed the CBI) was seen to be rooted in an incorrect assumption that all environmental groups agree and operate as a monolith. This failure to include a full range of NGOs created discord prior to the CBI's rollout. This demonstrates how power dynamics, nuanced opinions, and access to decision-making must be considered, or the collaborative governance process risks being viewed as unsuccessful or exclusionary (Özerol et al., 2018; Sullivan et al., 2019; Hillis et al., 2020; Vineyard, 2021). As such, one takeaway of this study is that policy makers and researchers ought not to assume that every group within a sector of society conforms with the others. This may sound obvious, but it is sometimes assumed that each individual or organization within a sector (Tribal nations, environmental groups, irrigators, etc) generally subscribes to a set of values and goals that separate them from other sectors. However, this research shows that paying attention to the divergent views of participants is key to environmental governance, alliance building, and environmental policymaking.

The case also contributes to political ecology scholarship on dam removal. Political ecologists that have studied the factors shaping support or opposition to dam removal note the importance of micropolitics, culture, and identity (e.g. Fox et al., 2016) as well as local historical-geographic factors (e.g. Magilligan et al., 2017). Our study builds on this work by indicating the important role of law in relation to political ecology in instances of dam removal. Scholarship linking legal geography and political ecology emphasizes the co-constitution of law and place in relation to socio-environmental conflict and change (e.g. Cantor et al., 2020; Vineyard et al., 2023). Here, the key point of contention around the CBI hinged on the role of environmental law in achieving species recovery. Some environmental NGO representatives who generally supported dam breaching opposed the CBI because they were unwilling

to accept the diminishment of legal tools like the ESA and the CWA. They saw the pause on environmental litigation as an unacceptable concession to industries that have benefitted from decades of ecological degradation. Conversely, other supporters of dam breaching observed that despite decades of legal battles (which have largely been won on behalf of the salmon), legal wins have not translated into restored salmon runs in the Lower Snake River. From this latter perspective, litigation was seen as an ineffective approach to species recovery because it did not provide the comprehensive solutions that Snake River salmon and steelhead so clearly need. These divergent perspectives on the role and effectiveness of environmental law shaped emergent unlikely alliances, leading some groups to support the CBI and others to oppose it. We note that the intersection between legal geography and unlikely alliances would benefit from further study in different contexts.

We recognize that this study is based on limited numbers. The interviews only included three stakeholders who supported dam breaching but opposed the CBI and only one opponent of dam breaching who supported the CBI (though we note that these positions were elaborated in media articles as well, indicating that their perspectives were more widespread than the small sample indicated). However, Emerson (2012) notes that in collaborative governance processes, crises can be felt by only one actor, feeling they have no choice but to align, and that these divergent stories are important and worth taking into consideration. These findings support that claim.

We conclude by emphasizing that the alliances in this case are not settled and can be considered emergent or in gestation, given that the issue itself is not yet settled. Even if these alliances are in gestation, the various perspectives examined here contain useful insight into how the dam removal debates in the Snake River Basin may be fostering unlikely alliances. These findings may help regional policy and decision makers move the conversation forward into more collaborative spaces. The severity of the overlapping crises threatening the survival of salmon in the basin has led to a desire for solutions that are creative, collaborative, and holistic. Yet, a spectrum of views exists when it comes to strategies to save the salmon. Examining the Lower Snake River dam removal debate through the perspectives of political ecology and unlikely alliances contributes a stronger understanding of how and why groups come together (or not) in support of or opposition to proposals for socio-environmental change.

## ACKNOWLEDGEMENTS

We would like to thank the interviewees who offered their time, expertise, perspectives, and resources for this research project. The Snake River means so much to so many, and discussing controversy is often personal and difficult. It is due to their willingness to share that this research is possible and full of richness. Thanks to Dr. Idowu Ajibade and Dr. Max Nielsen-Pincus for their insights. Thanks to Kate Gregory for making the map seen in this paper. Thanks to the Department of Geography at Portland State University for their community. Thanks to the anonymous reviewers and the editor who provided helpful guidance on the manuscript.

## REFERENCES

- Andrews, E.J.; Reed, M.G.; Jardine, T.D. and Steelman, T.A. 2018. Damming knowledge flows: Power as a constraint on knowledge pluralism in river flow decision-making in the Saskatchewan River Delta. *Society & Natural Resources* 31(8): 892-907, <https://doi.org/10.1080/08941920.2018.1451582>
- Ansell, C. and Gash, A. 2008. Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory: J-PART* 18(4): 543-571.
- Bellmore, J.R.; Duda, J.J.; Craig, L.S.; Greene, S.L.; Torgersen, C.E.; Collins, M.J. and Vittum, K. 2017. Status and trends of dam removal research in the United States. *WIREs Water* 4(2): 13.
- Blumm, M.C. and DeRoy, D. 2019. The fight over Columbia Basin salmon spills and the future of the Lower Snake River Dams. *SSRN Electronic Journal* 9(1): 101-125.

- Boelens, R.; Hoogesteger, J.; Swyngedouw, E.; Vos, J. and Wester, P. 2016. Hydrosocial territories: A political ecology perspective. *Water International* 41(1): 1-14.
- Boelens, R.; Shah, E. and Bruins, B. 2019. Contested knowledges: Large dams and mega-hydraulic development. *Water* 11(3): 416.
- Boelens, R.; Escobar, A.; Bakker, K.; Hommes, L.; Swyngedouw, E.; Hogenboom, B. and Wantzen, K.M. 2023. Riverhood: Political ecologies of socationature commoning and translocal struggles for water justice. *The Journal of Peasant Studies* 50(3): 1125-1156.
- Borgias, S. 2021. Unlikely alliances in rural-urban water conflicts. AAG Conference, Virtual, 9 April 2021.
- BPA (Bonneville Power Administration) Fact Sheet. 2016. *A Northwest energy solution: Regional power benefits of the lower Snake River dams*. Report No. DOE/BP-4751. <https://www.bpa.gov/-/media/Aep/about/publications/fact-sheets/fs-201603-A-Northwest-energy-solution-Regional-power-benefits-of-the-lower-Snake-River-dams.pdf>
- BPA (Bonneville Power Administration) News. 2021. *Lower Snake River Dams provided crucial energy and reserves in winter 2021*. Report No. PR 08-21. <https://www.bpa.gov/-/media/Aep/about/publications/news-releases/20210616-pr-08-21-lower-snake-river-dams-provided-crucial-energy-and-reserves-in-winter-2021.pdf> (accessed 21 September 2023)
- Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2): 77-101.
- Brummer, M.; Rodríguez-Labajos, B.; Nguyen, T.T. and Jorda-Capdevila, D. 2017. "They have kidnapped our river": dam removal conflicts in Catalonia and their relation to ecosystem services perceptions. *Water Alternatives* 10(3): 744-768.
- Calder, W. 2015. Documentary film: DamNation. *Journal of Education for Sustainable Development* 9(2): 233-234.
- Cantor, A.; Kay, K. and Knudson, C. 2020. Legal geographies and political ecologies of water allocation in Maui, Hawai'i. *Geoforum* 110: 168-179.
- Chaffin, B.C. and H. Gosnell. 2017. Beyond mandatory fishways: federal hydropower relicensing as a window of opportunity for dam removal and adaptive governance of riverine landscapes in the United States. *Water Alternatives* 10(3): 819-839.
- Chance, E.W.; Cobourn, K.M. and Thomas, V.A. 2018. Trend detection for the extent of irrigated agriculture in Idaho's Snake River plain, 1984-2016. *Remote Sensing* 10(1): 145, <https://doi.org/10.3390/rs10010145>
- Charnley, S.; Sheridan, T.E. and Nabhan, G.P. 2014. *Stitching the west back together: Conservation of working landscapes*. University of Chicago Press.
- Curley, A. 2021. Infrastructures as colonial beachheads: The Central Arizona Project and the taking of Navajo resources. *Environment and Planning D: Society and Space* 39(3): 387-404.
- Dorning, S. 2018. Klamath and Snake River Dam removal: Using contextualism to reevaluate an outdated technology. *Journal of Science Policy & Governance* 12(1): 1-19.
- Drapier, L.; Germaine, M-A.; Lespez, L.; Magilligan, F.J. and Sneddon, C. 2021. Networks, coalitions and the contestation of dam removal across political and institutional scales in France and New England (USA). *Geographical Review* 113(2): 246-267, <https://doi.org/10.1080/00167428.2021.1953382>
- Emerson, K.; Nabatchi, T. and Balogh, S. 2012. An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory* 22(1): 1-29, <https://doi.org/10.1093/jopart/mur011>
- Fox, C.A.; Magilligan, F.J. and Sneddon, C.S. 2016. "You kill the dam, you are killing a part of me": Dam removal and the environmental politics of river restoration. *Geoforum* 70: 93-104, <https://doi.org/10.1016/j.geoforum.2016.02.013>
- Fox, C.A. and C.S. Sneddon. 2019. Political borders, epistemological boundaries, and contested knowledges: Constructing dams and narratives in the Mekong River Basin. *Water* 11(3): 413.
- Fox, C.A.; Reo, N.J.; Fessell, B. and Dituri, F. 2022. Native American tribes and dam removal: Restoring the Ottawa, Penobscot and Elwha rivers. *Water Alternatives* 15(1): 31-55.
- Fung, A. and Wright, E.O. 2001. Deepening democracy: Innovations in empowered participatory governance. *Politics & Society* 29(1): 5-41, <https://doi.org/10.1177/0032329201029001002>

- Gosnell, H. and Kelly, E.C. 2010. Peace on the river? Social-ecological restoration and large dam removal in the Klamath basin, USA. *Water Alternatives* 3(2): 362.
- Grable, J. 2023. With one down, Klamath dam removal proceeds on schedule. Oregon Public Broadcasting, 18 July 2023.
- Grabowski, Z.J.; Denton, A.; Rozance, M.A.; Matsler, M. and Kidd, S. 2017. Removing dams, constructing science: Coproduction of undammed riverscapes. *Politics, Finance, Environment, Society and Technology* 10(3): 769-795.
- Grill, G.; Lehner, B.; Thieme, M.; Geenen, B.; Tickner, D.; Antonelli, F.; Babu, S.; Borrelli, P.; Cheng, L.; Crochetiere, H.; Ehalt Macedo, H.; Filgueiras, R.; Goichot, M.; Higgins, J.; Hogan, Z.; Lip, B.; McClain, M.E.; Meng, J.; Mulligan, M.; Nilsson, C.; Olden, J.D.; Opperman, J.J.; Petry, P.; Reidy Liermann, C.; Sáenz, L.; Salinas-Rodríguez, S.; Schelle, P.; Schmitt, R.J.P.; Snider, J.; Tan, F.; Tockner, K.; Valdujo, P.H.; Van Soesbergen, A. and Zarfl, C. 2019. Mapping the world's free-flowing rivers. *Nature* 569(7755): 215-221, <https://doi.org/10.1038/s41586-019-1111-9>
- Grossman, Z. 2005. Unlikely alliances: Treaty conflicts and environmental cooperation between native American and rural white communities. *American Indian Cultural Resources Journal* 29(4): 21-43.
- Grossmann, M. 2012. Interest group influence on US policy change: An assessment based on policy history. *Interest Groups & Advocacy* 1(2): 171-192.
- Grossman, Z. 2017. *Unlikely alliances: Native Nations and white communities join to defend rural lands*. University of Washington Press. Seattle, WA.
- Helmer, J. 2020. Farmers and salmon advocates agree: It's time to talk about the Snake River dams. *NRDC*, 2 January 2020.
- Hilbert-Wolf, H.L. and Gerlak, A.K. 2022. The evolution of the modern dam conflict on the Snake River, USA. *Water International* 47(8): 1349-1369, <https://doi.org/10.1080/02508060.2022.2090147>
- Hillis, V.; Berry, K.A.; Swette, B.; Aslan, C.; Barry, S. and Porensky, L.M. 2020. Unlikely alliances and their implications for resource management in the American West. *Environmental Research Letters* 15(4): 045002, <https://doi.org/10.1088/1748-9326/ab6fbc>
- Hirsch, S.L. 2020. *Anticipating future environments: Climate change, adaptive restoration, and the Columbia River Basin*. University of Washington Press.
- Hooper B. 2005. *Integrated river basin governance*. IWA Publishing.
- ISRP (Independent Scientific Review Panel). 2022. *Final report: Review of anadromous fish habitat and hatchery projects*. Prepared for the Northwest Power and Conservation Council. ISRP 2022-01, 10 February 2022.
- Kaika, M. 2006. Dams as symbols of modernization: The urbanization of nature between geographical imagination and materiality. *Annals of the Association of American Geographers* 96(2): 276-301.
- Laborde, S. and Jackson, S. 2022. Living waters or resource? Ontological differences and the governance of waters and rivers. *Local Environment* 27(3): 357-374.
- Linton, J. and Budds J. 2014. The hydrosocial cycle: Defining and mobilizing a relational-dialectical approach to water. *Geoforum* 57: 170-180.
- Loomis, J.B. 1996. Measuring the economic benefits of removing dams and restoring the Elwha River: Results of a contingent valuation survey. *Water Resources Research* 32(2): 441-447, <https://doi.org/10.1029/95WR03243>
- Lopardo, E.C. and Ryan, C.M. 2020. Dammed if you don't, but what if you do? Breaching the Lower Snake River Dams in Washington State. *Case Studies in the Environment* 4(1): 1-12, <https://doi.org/10.1525/cse.2019.sc.1036402>
- Magilligan, F.J.; Sneddon, C.S. and Fox C.A 2017. The social, historical, and institutional contingencies of dam removal. *Environmental Management* 59(6): 982-994.
- Maret, T.R. and Mebane, C. 2005. Historical and current perspectives on fish assemblages of the Snake River, Idaho and Wyoming. *American Fisheries Society Symposium* 2005: 41-59.
- Newig, J. and Fritsch, O. 2009. Environmental governance: Participatory, multi-level – and effective? *Environmental Policy and Governance* 19(3): 197-214, <https://doi.org/10.1002/eet.509>
- Nez Perce Tribe. 2022. Affiliated TRIBES of Northwest Indians pass united resolution supporting removal of four Lower Snake River dams. [www.nezperce.org](http://www.nezperce.org) (accessed 21 September 2023)

- NOAA (National Oceanic and Atmospheric Association) Fisheries. 2020. *Questions and answers on Columbia Basin salmon, Snake River dams and Southern Resident killer whales*. U.S. Department of Commerce.
- Norgaard, K.M.; Reed, R. and van Horn, C. 2011. *A continuing legacy: Institutional racism, hunger, and nutritional justice on the Klamath*. MIT Press.
- O'Connor, J.E.; Duda, J.J. and Grant G.E. 2015. 1000 dams down and counting. *Science* 348(6234): 496-497.
- O'Donnell, E. 2018. *Legal rights for rivers: Competition, collaboration and water governance*. Routledge.
- Olsson, P.; Folke, C.; Galaz, V.; Hahn, T. and Schultz, L. 2007. Enhancing the fit through adaptive co-management: Creating and maintaining bridging functions for matching scales in the Kristianstads Vattenrike Biosphere Reserve, Sweden. *Ecology and Society* 12(1): 28, <https://www.jstor.org/stable/26267848>
- Özerol, G.; Vinke-de Kruijf, J.; Brisbois, M.C.; Flores, C.C.; Deekshit, P.; Girard, C.; Knieper, C.; Mirnezami, S.J.; Ortega-Reig, M.; Ranjan, P.; Schröder, N.J.S. and Schröter, B. 2018. Comparative studies of water governance: A systematic review. *Ecology and Society* 23(4): 43, <https://www.jstor.org/stable/26796888>.
- PacifiCorp. 2020. Klamath Hydroelectric Settlement Agreement Implementation Report.
- Palmer, T. 1991. *The Snake River: Window to the West*. Island Press.
- Phinney, R. 2017. *Strange bedfellows: Interest group coalitions, diverse partners, and influence in American social policy*. Cambridge University Press.
- Quaempts, E.J.; Jones, K.L.; O'Daniel, S.J.; Beechie, T.J. and Poole, G.C. 2018. Aligning environmental management with ecosystem resilience: a First Foods example from the Confederated Tribes of the Umatilla Indian Reservation, Oregon, USA. *Ecology and Society* 23(2): 29, <https://doi.org/10.5751/ES-10080-230229>
- Rocheleau, D.E. 2008. Political ecology in the key of policy: From chains of explanation to webs of relation. *Geoforum* 39(2): 716-727.
- Randell, H. and Curley, A. 2023. Dams and tribal land loss in the United States. *Environmental Research Letters* 18(9): 094001, <https://doi.org/10.1088/1748-9326/acd268>
- Robbins, P. 2012. *Political ecology: A critical introduction (2<sup>nd</sup> ed)*. John Wiley & Sons Ltd. New York, NY.
- Save Our Wild Salmon. n.d. Why remove the 4 lower Snake River dams? <https://www.wildsalmon.org/facts-and-information/why-remove-the-4-lower-snake-river-dams.html> (accessed 21 September 2023)
- Simpson, M. 2021. The Columbia Basin Initiative. <https://simpson.house.gov/salmon/> (accessed 21 September 2023)
- Skalski, J.R.; Whitlock, S.L.; Townsend, R.L. and Harnish, R.A. 2021. Passage and survival of juvenile salmonid smolts through dams in the Columbia and Snake rivers, 2010-2018. *North American Journal of Fisheries Management* 41(3): 678-696, <https://doi.org/10.1002/nafm.10572>
- Slaughter, R. 2004. *Institutional history of the Snake River 1850-2000*. Climate Impacts Group, University of Washington.
- Sneddon, C.S.; Barraud, R. and Germaine, M.-A. 2017. Dam removals and river restoration in international perspective. *Water Alternatives* 10(3): 648-654.
- Sneddon, C.S.; Magilligan, F.J. and Fox, C.A. 2017. Science of the dammed: Expertise and knowledge claims in contested dam removals. *Water Alternatives* 10(3): 677-696.
- Sullivan, A.; White, D.D. and Hanemann, M. 2019. Designing collaborative governance: Insights from the drought contingency planning process for the lower Colorado River basin. *Environmental Science & Policy* 91: 39-49, <https://doi.org/10.1016/j.envsci.2018.10.011>
- Swyngedouw, E. 2009. The political economy and political ecology of the hydrosocial cycle. *Journal of Contemporary Water Research and Education* 142(1): 56-60.
- USACE (US Army Corps of Engineers). 2022. Lower Snake River dams: A value to the nation. *Walla Walla District Website*, 2022.
- Vineyard, N. 2021. Rowing concerns: Collaborative governance and stakeholder determination in the Central Oregon's Deschutes Basin. MSc Thesis. Portland State University, Portland, Oregon.
- Vineyard, N.; Berry, K. and Ormerod, K.J. 2023. Legal geographies of water. *WIREs Water* 10(5): e1652.
- Washington State. 2020. *Lower Snake river dams stakeholder engagement. Final Report*. 2020. <https://www.governor.wa.gov/sites/default/files/Final%20Draft%20LSRD%20Report.pdf>

Weiler, C.; Giles, D. and Asmutis-Silvia, R. 2018. The ecosystem approach: Recovering rivers to help save the Southern Resident killer whales. *Salish Sea Ecosystem Conference*, <https://cedar.wvu.edu/ssec/2018ssec/allsessions/57> (accessed 21 September 2023)

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