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Native American Tribes and Dam Removal: Restoring the Ottaway, Penobscot and Elwha Rivers

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ABSTRACT: Since the early 1900s, more than 1700 dams have been removed from rivers in the United States. Native American Tribes have played a key role in many significant removals, bringing cultural, economic, and legal resources to bear on the process. Their involvement contrasts with the displacement and marginalisation that have historically characterised the relationship between Native Americans and the dams built by settler – colonial governments on their rivers. Our research investigates Tribal involvement in dam removals, with examples from the Ottaway, Penobscot, and Elwha rivers. We ask the following: what roles have Tribes played in successful removals? How do dam removals affect and reflect shifting relations between Tribal governments and non-Tribal actors? Our research finds that Tribal involvement provides opportunities for inserting underacknowledged values and resource claims into dam removal efforts, and that it facilitates new collaborations and alliances. We also find evidence of Tribal involvement affecting the nature and practice of river restoration through dam removal. We conclude that the involvement of Tribes in dam removal contributes to important shifts in environmental politics in the US, and that it also creates opportunities for restorative environmental justice for Native Americans and their rivers.

KEYWORDS: Native American Tribes, dam removal, Indigeneity, restorative environmental justice, political ecology

INTRODUCTION

In 2016, the Saint Regis Mohawk Tribe became the first Native American Tribe to initiate the decommissioning of a federally licensed and operating hydropower dam. A few years earlier, the Lower Elwha Klallam Tribe played a key role in the largest dam removal in the United States to date. Similarly, in 2013, the Penobscot Indian Nation (PN) spearheaded an unprecedented collaboration with non-Tribal stakeholders to remove two dams on the Penobscot River in Maine. These removals stand in contrast to the displacement and marginalisation that have commonly characterised the relationship between Tribes and dams in the US and around the world (McCully, 2001; Tilt et al., 2009; Richter, 2010; Colombi, 2012; Ween and Colombi, 2013). Dams built on the Columbia and Klamath rivers, for example, damaged fisheries to the detriment of Tribal livelihoods and cultures; the Glen Canyon dam on the Colorado River submerged sacred sites; the construction of the Oahe dam on the Missouri River led to the loss of tens

of thousands of fertile acres on two reservations in South Dakota; the Garrison dam in North Dakota forced the relocation of more than 90 percent of the Three Affiliated Tribes; and, in Pennsylvania, the Seneca Nation of Indians lost nine communities and 10,000 acres (4046 hectares) of their Allegheny territory to the Kinzua Dam.

Since the early 1900s, nearly 1800 dams have been removed from rivers in the US (American Rivers, 2021). Tribes have played a key role in many significant removals, bringing cultural, economic, and legal resources to bear on the process. These dam removals and the river restorations that they facilitate offer an opportunity to study the shifting landscape of environmental politics in the 21st century. Specifically, Tribal involvement in dam removal provides a lens through which to investigate the emergence of new political, cultural, and ecological spaces in river restoration efforts. These spaces are important in that they provide opportunities for inserting underacknowledged value and resource claims into dam removal efforts, while facilitating new collaborations and alliances.

The paper begins with a review of Tribal involvement in dam removal across the US, noting key features and trends. This is followed by a review of the research and concepts that frame our analysis, with a particular focus on how a political ecology of Indigeneity can enhance understanding of the cultural and political dynamics bound up with dam removal as river restoration. We then provide a more in-depth look at successful removals on the Ottaway, Penobscot, and Elwha Rivers.¹ The research raises the following questions: what roles have Tribes played in successful removals? How does dam removal affect and reflect shifting relations between Tribal governments and non-Tribal actors?

The analysis draws on findings from two earlier research projects, bringing together insights from both. The first project was a collaborative research effort that relied on Indigenous methodologies to investigate river restoration efforts by three Indigenous communities in Canada, the United States, and New Zealand.² Members of the Grand Traverse Band of Ottawa and Chippewa Indians (GTB) were research partners in that project. Two of our co-authors have experience working as natural resource managers with GTB and have personal knowledge of the Ottaway River dam removals. While this paper is informed by that fieldwork, we also drew on a video produced more recently by the Tribe, in which members share their experiences and perspectives on dam removal. GTB's production of the video reflects the growing use of digital technologies by Indigenous communities to represent themselves to a wider audience and to thereby "reassert their own culture, improve social ties within and across communities, and resist the on-going effects of colonialism" (Young, 2017: 55). The research also draws on a project focused on dam removal in New England, which included an investigation of the Penobscot River.³ While this research provided an important foundation and context for this analysis, we primarily used more recent videos, news stories, and educational/outreach materials produced by the Penobscot Nation, in which members share reflections and experiences of dam removal. For the Elwha case, which has been more extensively documented, we relied on secondary sources, including videos and educational/outreach materials produced by the Lower Elwha Klallam Tribe. We have also created a database of all dam removals with a Tribal component in the US, containing over 200 supporting documents. We chose our cases from that database, based on the following: (1) our own previous research on the Ottaway and Penobscot dam removals and significant secondary materials on the Elwha dam removals; (2) the fact that in each case the Tribe took a leadership role in removing multiple dams on their rivers; and (3) in all three cases, the Tribes undertook to share their experiences with a wider community through their production of outreach and educational materials.

¹ The Grand Traverse Band of Ottawa and Chippewa Indians call the Boardman River the Ottaway, and we use that name throughout the paper. In official documents, the river is referred to as the Boardman.

² For a complete description of the methodology, see Fox et al. (2017).

³ The research involved site visits, interviews, and the compilation of a database of more than 1000 files containing documents and reports related to dam removal in the New England region. For an analysis of the Penobscot River dam removals from the project, see Sneddon et al. (2021).

TRIBES AND DAM REMOVAL

We found over 30 cases of Tribal involvement in proposed, ongoing, or completed dam removals in the US (Table 1). In some instances, removals have been proposed and negotiation remains highly contested, with Tribes representing one of many actors arguing for removal. Federal agencies and farmers in the Pacific Northwest, for example, are in favour of relicensing a series of dams on the Lower Snake River, but a coalition of Tribes and conservation groups is calling for removal. In other cases, the process is further along and is largely driven by Tribes, as evidenced by the agreement to remove four hydroelectric dams on the Klamath River, which will be the largest dam removal project to date in the US. Other cases include removals that have concluded successfully with varying levels of Tribal involvement; for example, the Confederated Salish and Kootenai Tribes cooperated in the removal of the Milltown dam near Missoula, Montana, and the Yakima Nation collaborated in the removal of Washington State’s Condit dam. Also in Washington State, the Lummi Nation, the Tulalip Tribes, and the Nooksack Tribe were partners in the recent removal of two fish-blocking dams from the Middle Fork Nooksack and Pilchuck Rivers. The Ottaway, Penobscot, and Elwha dam cases are all in this category of completed removals.

Table 1. Dam removals with Tribal involvement in the United States.

State	River	Dam	Date removed	Tribe
AK	Eklutna River	Lower Eklutna River dam	2019	Eklutna Native People; Dena’ina People*
CA	Clear Creek	Saeltzer dam	2000	Yurok Tribe
DE	Brandywine Creek	Lenape dam	2021	Lenape Tribe*
ID	Clearwater River	Grangeville dam Lewiston dam	1963 1973	Nez Perce Tribe
MA	Cotley River	Barstowe’s Pond dam	2018	Mashpee Wampanoag Tribe
MA	Scantic River	Springborn dam	2017	Mashantucket Pequot and Mohegan Tribes
MA	Town Brook	Billington Street; Holmes; Off-Billington Street; and Plymco dams	2002 2019 2013 2015	Mashpee Wampanoag Tribe
ME	Penobscot River	Great Works dam; Veazie dam	2013	Penobscot Nation
ME	Soudabscook Stream	Grist Mill dam	1998	Penobscot Nation
MI	Ottaway River	Boardman dam Brown Bridge dam Sabin dam	2017 2013 2018	Grand Traverse Band of Ottawa and Chippewa Indians
MI	Dowagiac River	Pucker Street dam	2021	Pokagon Band of Potawatomi Indians
MI	Grand River	Sixth Street dam	Removal delayed as of 2021	Grand River Band of Ottawa Indians

MI	Maple River	Lake Kathleen dam	2018	Little Traverse Bay Bands of Odawa Indians
MT	Clark Fork Blackfoot confluence	Milltown dam	2007	Confederated Salish and Kootenai Tribes
MT	Rattlesnake Creek	Rattlesnake dam	2020	Confederated Salish and Kootenai Tribes
NY	St. Regis River	Hogansburg dam	2016	St. Regis Mohawk Tribe
OR	Sprague River	Chiloquin dam	2008	Klamath Tribes (Yurok, Hoopa, Karuk)
OR	Walla Walla River	Marie Dorian dam	1997	Confederated Tribes of the Umatilla Indian Reservation
RI	Pawtuxet River	Pawtuxet Falls dam	2011	Narragansett Indian Tribe
WA	Elwha River	Elwha dam; Glines Canyon dam	2014	Lower Elwha Klallam Tribe
WA	Jim Creek	Jim Creek dam	2002	Stillaguamish Tribe
WA	Middle Fork Nooksack River	Nooksack dam	2020	Nooksack Indian Tribe
WA	Naches Tributary of the Yakama River	Nelson dam	Planned for 2021	Yakama Nation
WA	Pilchuck River	Pilchuck River dam	2020	Tulalip Tribe
WA	Satus Creek	Satus dam	2009	Yakama Nation
WA	Similkameen River	Enloe dam	Removal in progress	Confederated Tribes of the Colville Reservation
WA	White Salmon River	Condit dam	2020	Yakama Nation
WA	Wildboy Creek	Kwoneesum dam	Planned for 2022	Cowlitz Indian Tribe
WI	Wolf River	Balsam Row dam; Wraco Lodge dam	2015	Menominee Indian Tribe
CA; OR (NV; NE)	Klamath River	Copco #1; Copco #2; Iron Gate; and J.C. Boyle dams	Planned for 2024	Yurok Tribe; Karuk Tribes
ID; OR; WA	Snake River	Ice Harbor; Little Goose; Lower Granite; and Lower Monumental dams	Advocating for removal by 2031	Confederated Tribes of the Umatilla Indian Reservation; Lummi Nation; Makah Tribe; Swinomish Indian Tribal Community; Tulalip Tribes; Yakama Nation; Nez Perce Tribe; Salish and Kootenai Tribes

Note: * Non-federally recognised Tribes.

In advocating for removal, Tribes adopt multiple roles. They raise funds, forge alliances, assert historical and cultural claims, and navigate a complex legal terrain. A review of Tribal involvement in removals reveals a few prominent themes. First and foremost, when Tribes are involved in dam removals, issues of culture and identity are central. This creates a high degree of motivation to pursue and follow through on projects, as demonstrated by our three examples. Additionally, the US Federal Energy Regulatory Commission (FERC), which licenses and inspects private, municipal, and state hydroelectric projects, has an obligation to consult with federally recognised Tribes when dams are under consideration for relicensing, and this obligation has recently been revised with a specific reference to treaty rights (FERC, 2019).⁴ While "every issue of concern to an Indian tribe related to a treaty, statute, or executive order" (FERC, 2019) must be considered during the consultation process, the protection of fish is particularly prominent in many dam removals because Tribes have treaty rights and/or cultural claims to salmon and other anadromous species that are threatened by dams. In many removals, FERC relicensing and fisheries come together under Section 18 of the US Federal Power Act, which gives the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS) the power to prescribe mandatory conditions for a FERC license (Federal Power Act, 1920; Bonham, 1999; Vann, 2020).

As demonstrated by the Condit dam, these issues are generally intertwined. This dam was removed in 2011 from the White Salmon River in Washington State. The removal opportunity emerged when PacifiCorp, the dam owner, sought relicensing for the dam (Chaffin and Gosnell, 2017). When it became clear that PacifiCorp could not meet FERC requirements for fish passage to protect threatened and endangered steelhead and salmon, removal became a viable option. The Confederated Tribes and Bands of the Yakama Nation, together with environmental groups, then negotiated a settlement with PacifiCorp and started the removal process (American Rivers, n.d.; PacifiCorp, 2019). An engineering study co-sponsored by the Yakama Nation and the Columbia River Inter-Tribal Fish Commission was central to the negotiations and agreements that ultimately led to this action. This was the first study to suggest that dam removal could be a cost-effective option.

The cultural significance of the dam's removal is difficult to overstate. As a Tribal member explains,

After 100 years, the river is being returned to the salmon and the Yakama people. We have been taught that when we fix the water the traditional foods will follow. When we fix the White Salmon River; salmon, steelhead, and lamprey will follow. Our tribal members will be there to greet them because *íchi tímani tiichám iwa niimi*. This land is a part of us (Washines, 2011).

A similar set of circumstances characterised the 2016 removal of the Hogansburg dam, which was located on ancestral Saint Regis Mohawk land adjacent to the Tribe's reservation in New York State. In 2011, when the dam owner applied for relicensing, the Tribe contacted FERC to urge decommissioning, detailing both the many adverse environmental consequences of the dam as well as the benefits of removal for river restoration (Saint Lawrence Environmental Trust Council, 2011). When Brookfield Renewable ultimately decided it was too expensive to make the required upgrades, the Saint Regis Mohawk Tribe took the lead in the decommissioning processes by becoming a co-licensee and working with the US Fish and Wildlife Service, the New York State Department of Environmental Conservation, and Trout Unlimited. The dam removal re-established the river's connection to the St. Lawrence River; it also opened nearly 275 miles (442 km) of stream habitat to migratory fish, including American eel, lake sturgeon, Atlantic salmon, and walleye (USFWS Northeast, 2016).

⁴ Most Tribes gained federal recognition through treaties, Acts of Congress, or other federal actions. In 1994, Congress enacted Public Law 103-454, the Federally Recognized Indian Tribe List Act (108 Stat. 4791, 4792). This established three ways in which a Tribe may become federally recognised: by an Act of Congress, under 25 C.F.R. Part 83, or from a U.S. court decision (BIA, n.d.).

INDIGENEITY AND DAM REMOVAL

Conflict features prominently in most dam removal cases, as divergent agendas are pursued by Tribal governments, environmental organisations, communities, farmers, and federal, state, and municipal entities. Conflicts surrounding dam removal involve culturally and historically based resource claims, competing understandings of science, and complex power relations (Jørgensen and Renöfält, 2012; Fox et al., 2016), with Tribal involvement adding another set of governmental actors, worldviews, and political-economic concerns. A political ecology approach coupled with insights from work on geographies of Indigeneity can shed light on the politics of dam removal as a type of resource conflict, while remaining attentive to important cultural dimensions (Yeh and Bryan, 2015; Radcliffe, 2015). Political ecology originated in attempts to describe the spatial and temporal impacts of capitalism on people and environments in the Global South, responding to the apolitical nature of research on environmental change (Blaikie and Brookfield, 1987; Bailey and Bryant, 1997; Bridge et al., 2015). Much of the focus has been on marginalised rural populations, including Indigenous and minority communities (Li, 2010; Perreault and Green, 2013; Baird, 2015). Outside of the Global South, political ecology research has sought to explain environmental issues and conflicts ranging from smallholder reforestation in Ohio (Law and McSweeney, 2013), to fisheries and local knowledge in Alaska (Holen, 2004), and environmental knowledge in Yellowstone National Park (Robbins, 2006). Indigenous political ecology research in the Global North has focused on reindeer herders in Norway (Benjaminsen et al., 2015), Tribal stewardship and parks in the US (Carroll, 2014), cultural resource protection in California (Middleton Manning, 2019), and emotional geographies of sacred spaces (Dallman et al., 2013).

A political ecology approach advances a key goal of this inquiry, which is to move beyond essentialist descriptions of the relationship between Tribes and river ecosystems to offer insights into the "complex ways that indigeneity has been entangled with nature conservation" (Hope, 2017: 74). This requires investigating the spiritual and cultural significance of rivers for Tribal communities, paying particular attention to the "incommensurabilities between Indigenous and Western ontologies" (Behn and Bakker, 2019: 114). As Penobscot Chief Kirk Francis explains about his Tribe's relationship to their river, "To the Penobscot, this river is our very soul, a place where we truly hold hands with our history and our ancestors (...). This river is simply who we are; it's at the very core of our identity as a people" (Botelho, 2013). In other words, while environmental issues are never free from politics, for Tribes they are about much more than control of resources; indeed, environmental management is equally about Tribal "health and well-being" (Ranco et al., 2011: 222). By paying close attention to the intersection of political and cultural dynamics in dam removal, it also becomes clear that Tribal leadership is "opening up new political spaces, across scales, to debate how nature is valued, protected and lived with" (Hope, 2017: 74). Similar to Middleton Manning's (2019: 1) finding that, "Native and non-Native allies" worked together to "privilege Indigenous epistemologies" in cultural resource protection, our analysis demonstrates that dam removal can bring together actors and communities well beyond Tribal ones, and that this coming together can have wide-reaching consequences for how we understand and live with rivers.

The research builds on the work of Indigenous scholars and others who have investigated the multiple roles of Indigenous peoples in river restoration and water governance (Long et al., 2003; Te Aho, 2009; Morris and Ruru, 2010; Cosens and Chaffin, 2016; Holtgren et al., 2014; McGregor, 2014; Norman, 2017; Wilson and Inkster, 2018; Salmond et al., 2019; Sarna-Wojcicki et al., 2019; and McGreavy et al., 2021). A common finding of this research is that while Indigenous peoples are making essential contributions to these efforts, they are seldom treated as full partners and are often excluded from important decisions about water governance and management (von der Porten and de Loe, 2013; Chief, 2018; Emanuel and Wilkins, 2020). There are also ongoing concerns in water governance process and practice about the difficulties of ensuring mutually respectful collaboration between Western science and traditional knowledges (McGregor, 2012). Within the literature on Indigeneity and water governance, there is a growing focus on river restoration with a dam removal component (McCool, 2007; Busch, 2008; Gosnell and Kelly, 2010; Opperman et al., 2011; Guarino, 2013; Saulters, 2014; Chaffin and Gosnell, 2017; Brewitt,

2019; Mauer, 2021). The evidence from this research suggests that when river restoration has a dam removal component, there are increased opportunities for Tribal leadership. While this most obviously relates to Tribal consultation obligations around FERC relicensing (FERC, 2019), it may also be the case that the dam itself as an object of intervention focuses attention on river restoration as a decolonising practice. In other words, as McGreavy et al. (2021: 940) note about the Penobscot dams, because the "disparate and negative impacts of dams on the PN can be traced back hundreds of years", those dams function as tangible objects around which Tribes can pursue "place-based processes of envisioning justice" (Middleton Manning, 2019: 12). Dam removal can therefore be a form of restorative environmental justice with Tribes as central actors (Hill et al., 2019).

There is an extensive literature on Indigenous environmental justice, particularly as it relates to decolonisation (Figueroa and Waitt, 2010; Ranco et al., 2011; Whyte, 2011, 2013, 2018a, 2018b; Cochran et al., 2013; Cozzetto et al., 2013; Vickery and Hunter, 2016; Cantzler and Huynh, 2016; Dhillon, 2018; McGregor, 2018; Curran, 2019; and Hernandez, 2019). Our research, however, makes a singular contribution through its conceptualisation of dam removal as restorative environmental justice. To that end, we hope to bring insights from Indigenous political ecology into conversation with recent work that is being done at the intersection of political ecology and radical environmental justice. As Svarstad and Benjaminsen (2020) note, both political ecology and radical environmental justice entail critical studies of environmental interventions. Radical environmental justice refers to consideration of distributive justice, recognition, procedural justice, and capabilities theory (Schlosberg, 2004, 2007). Political ecology adds important conceptual tools to the discussion, focusing on how "power manifests itself in both discursive and material struggles regarding the environment" (Svarstad and Benjaminsen, 2020: 2). Building on this approach, we see an opportunity for further "Indigenizing environmental justice" (Hernandez, 2019: 1) through more explicitly focusing on the restorative aspects of environmental justice to help reveal dam removal as a decolonialising practice (Cantzler and Huynh, 2016). Conceptualising dam removal in this way draws attention to the power relations that underpin settler – colonial activities on Indigenous lands and rivers, while creating space for environmental restoration that is inclusive of human and non-human worlds. Additionally, because dam removals with Tribal involvement are almost always about restoring both nature and culture, there are opportunities to engage a "political ontology" that acknowledges other worlds and other ways of being in nature (Escobar, 2016: 13). In other words, particularly when Tribes are key actors, river restoration is not simply about different ways of knowing a river; rather, dam removal creates space for more relational and non-dualistic ways of being with rivers, allowing Tribes to practice more fully the "inherent stewardship responsibilities that we've had for this watershed [the Penobscot] since time immemorial" (Banks, 2020). This practice of stewardship and care also presents opportunities to "educate non-Native citizens on the continuities between past and present" (Middleton Manning, 2019: 1) that characterise Tribal relationships with their rivers. This education, in turn, highlights the restorative environmental justice dimensions of dam removal.

THE OTTAWAY, PENOBSCOT AND ELWHA RIVERS – INSIGHTS FROM SUCCESSFUL REMOVALS

In order to investigate questions about Tribes and dam removal across geographical and cultural contexts, we examine three cases in more depth. In each case, we were struck by how the ecological rationale for dam removal gained momentum as the process proceeded, with Tribal involvement opening "ecological space", even if early efforts were driven by cultural, political, or legal claims. Ecological rationales for dam removal, in turn, created more opportunities for collaborations and alliances with non-Native communities and constituencies, resulting in a sort of "science diplomacy" at the river basin scale (Goodsite et al., 2016). While the cases reveal differences in the role of Indigeneity in river restoration politics, each removal clearly benefitted from the engagement of Tribes while also providing Native communities and their rivers some measure of restorative justice (Brown, 2020).

The Grand Traverse Band of Ottawa and Chippewa Indians and the Ottawa River: "What kind of an ancestor will you be?" (Bailey, J. 2017)

Background

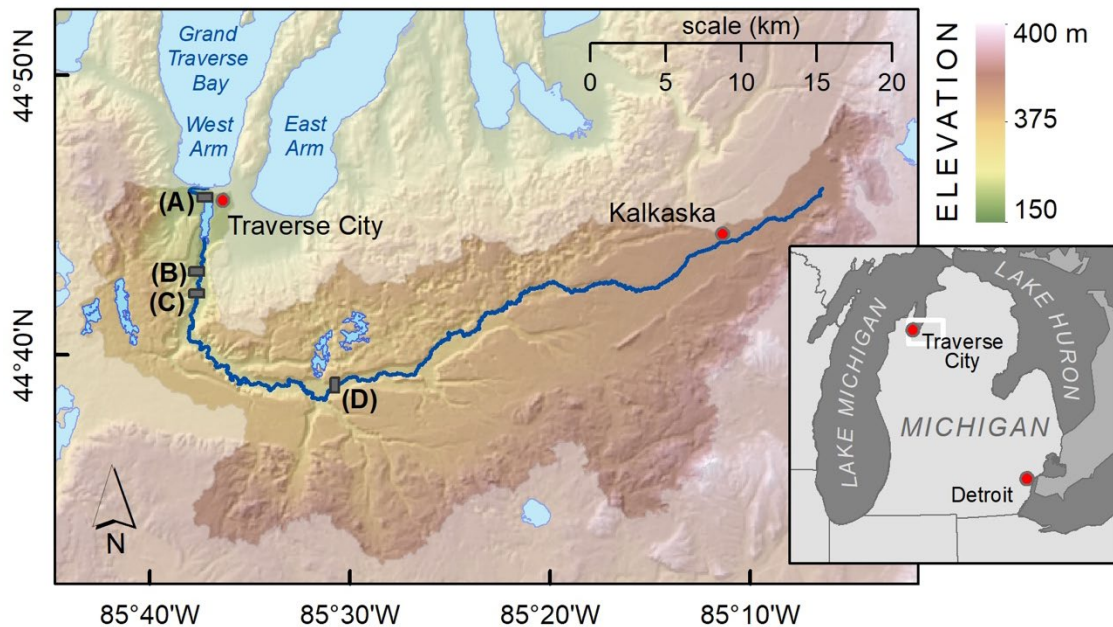
The Ottawa River comprises 160 miles (257 km) of river and tributary streams in the northwest Lower Peninsula of Michigan. Its waters flow through a landscape of forests, fields, and towns before reaching Grand Traverse Bay, where it contributes a third of the bay's total volume (Figure 1). The Grand Traverse Band of Ottawa and Chippewa Indians (GTB) has been a central actor in the removal of three dams on the Ottawa River. Tribal involvement helped to jump-start river restoration; by securing funding for a feasibility study, working on community support, and taking on the risk of removal, they "[got] rid of easy excuses to not move ahead" with the process (Fessell, 2017). A core group of Tribal and non-Tribal individuals worked to facilitate community involvement throughout the process and to move the project forward when momentum waned during moments of local political uncertainty. These efforts, coupled with ongoing professional engagement by GTB's Natural Resources Department, helped accentuate shifting power relations related to Tribal recognition, while intentionally elevating the role of GTB in natural resource management. The result has been the most comprehensive dam removal and watershed restoration effort in Michigan's history.

In the 19th and early 20th centuries, Queen City Light & Power (subsequently renamed Traverse City Light & Power, or TCLP) constructed the Sabin, Boardman, and Brown Bridge hydropower dams on the Ottawa River, and a fourth, the Union Street dam, was built to maintain the water level of Boardman Lake. The dams damaged the river's ecosystem by limiting sediment and nutrient movement, altering river morphology, fragmenting habitat, preventing fish passage, and raising water temperatures; this constituted a particularly problematic change for native cold-water species such as native and grayling brook trout. Brown Bridge dam's license was set to expire in 2003, at a point when the dams were generating, at most, 1 MW each (Environmental Consulting & Technology Inc., 2009). When it became clear that upgrades required by FERC to renew the license could cost more than \$1 million (due to inadequate spillway capacity), TCLP decided that it was no longer economically feasible to continue to operate the dams. In 2004, TCLP terminated its lease with the dam owners, Grand Traverse County and Traverse City (USFWS, 2012). The owners' willingness to explore options regarding the ultimate fate of the dams quickly changed its trajectory when they understood that any decisions that included retaining the dams was likely to have significant financial implications.

To ensure the owners' compliance with FERC administrative procedures, the Michigan Hydro Relicensing Coalition (MHRC) assisted in the development of the Boardman River Dams Settlement Agreement (2005), facilitating the formal process of license surrender and decommissioning of the dams (MHRC, 2019). Given the possibility of restoration through dam removal, GTB signalled their willingness to support the effort by signing the Settlement Agreement in 2005, along with other key parties. Together, these partners comprised the Boardman River Implementation Team (IT), which now had the authority and responsibility for decisions related to decommissioning of the dams. In addition to establishing the implementation team and the decommissioning procedure, the Settlement Agreement served as an important blueprint for helping the team engage environmental groups and citizens in the decision-making process. The IT formed the Boardman River Dams Committee (BRDC) in 2005 with the intent to engage all interests in developing those recommendations. Over the next four years, the IT (via the "BRDC process") helped guide the community and owners through the process of rendering alternatives, building trust, raising funds, and securing contractors; they ultimately arrived at the conclusion that it was not economically feasible to relicense any of the dams (Environmental Consulting & Technology Inc., 2009). In April of 2009, at the recommendation of the implementation team, the city and county commissions held a joint session to approve the decision to remove the three upper hydropower dams and to modify the lowest dam at Union Street. This process took nearly a decade, but

Brown Bridge dam was finally removed in 2012, Boardman in 2016, and Sabin in 2018. Construction to allow fish passage for certain species is currently underway at the Union Street dam.

Figure 1. Ottaway River map showing the Union Street dam (A), the former site of the Sabin dam (B), the former site of the Boardman dam (C), and the former site of the Brown Bridge dam (D).



Tribal involvement

The Grand Traverse Band of Ottawa and Chippewa Indians has lived in the region surrounding the Ottaway River for thousands of years, and their lives and livelihoods have been adversely affected by a wide range of settler activities. From the beginning of the dam removal process, Tribal members were motivated to undo some of this historic damage by advocating for dam removal and river restoration. While the dam owners were initially spurred by economic rationales, the Tribe has been driven largely by environmental, cultural, and spiritual concerns. For GTB, water is a living and sacred being. As a Tribal member explains, "We know the river has a voice through us and our work and the songs and ceremonies that we do on her behalf. In her words, we know that she's alive, that the water is alive" (Cook, 2017). The Tribe understands dam removal and river restoration to be a healing process for the river ecosystem and the GTB community. A Tribal elder emphasises that river restoration is about the wider community of creatures, asserting that, "they all had a voice" and now they are saying, "*Miigwech* [thank you] for listening to me" (Bailey, H. 2017). This holistic perspective guides Tribal river restoration efforts, and it goes beyond just removing one dam to encompass a consideration of the entire basin ecosystem. As another elder observes about the process, "Restored means that the other relatives have a chance to live better. Their quality of life improves (...) fish nation, deer nation, bird nation, all the living things" (Bailey, J. 2017).

Early in the process, GTB brought much-needed funds to the removal. In 2005, the Tribe was awarded \$250,000 from the Fish and Wildlife Service to carry out an engineering and feasibility study for the potential removal of the dams (USFWS, 2005). Five years later, the Tribe (together with the Conservation Resource Alliance) secured a second federal grant of nearly \$500,000; this allowed them to work with other stakeholders to create the contract that would develop the plan for the dam removals and the subsequent river and ecosystem restoration (US Army Corps of Engineers, 2014). Additional funds came from the Bureau of Indian Affairs, which contributed \$1,349,000 to the Brown Bridge removal and river

restoration. GTB's willingness to provide funds and its ability to access them in the initial stages of the process were key to moving dam removal forward. The funding opportunities had emerged from the recent restoration of political and legal rights to GTB. Even though they have lived in the region for thousands of years, and despite the fact that several treaties were signed during the 1800s, the Ottawa and Chippewa Indians in this area were not formally recognised as a Tribal government by the United States from 1872 until 1980 (Fletcher, 2006). At that point, they were re-recognised by the Federal Government as the Grand Traverse Band of Ottawa and Chippewa Indians. With this change in status, GTB was able to access federal funds to create Tribal social service programmes and to establish a natural resources management team. They also benefitted from a treaty rights requirement that local, state, and federal agencies engage in ongoing consultation with federally recognised Tribes in the project area (USFWS, 2012).

The Tribe also initiated a communications outreach and education programme to discuss the mutual benefits of Ottaway River restoration and its continued protection. The outreach was underpinned by an understanding of the need to actively engage a wide range of stakeholders and to avoid a top-down approach. From 2005 to 2009, public outreach included over 200 public meetings with over 1000 participants, and public input was sought on 84 possible options for dealing with the dams. The removal was not without controversy, with opposition coming from property owners adjacent to the river and from community members who used the reservoirs for fishing and recreation. Community relations were strained even further in 2012 when there was an accidental breach during the removal of Brown Bridge. The unexpected rapid release of water led to a four-foot rise in river levels in 45 minutes, flooding riverside properties.

Despite these tensions, the dam removal process benefitted relationships between GTB, the wider community, and federal, state, and local agencies. As a member of the US Army Corps of Engineers remarked,

The leadership role that the Grand Traverse Band has taken on this project has been something that I have never seen before. Not only that, understanding and working with the Tribe and really beginning for the first time in my own life to realize the issues that they face, the determination that they have to restore this environment has really been something that I will take away and that is going to last with me for a long time (Platz, 2017).

A member of the Michigan Department of Natural Resources echoed this sentiment, saying that, "I do know that the respect and the admiration for the Tribe was immense through this project as a result of their deep, deep commitment not only to the Boardman watershed but to this project as a whole and to the community" (Kalish, 2017). Tribal members similarly felt the process benefitted relations with the community. As one GTB member noted, "We came together as a people, Native and non-Native people, and thought what was best for the water" (Shomin, 2017). And, while there are still competing perspectives on how to move forward with improving connectivity between Grand Traverse Bay and the Ottaway River while providing a barrier to keep invasive species out, the debate and discussion are focused more on problem-solving and less on attacking the opposition. At a recent meeting, more than 100 residents came together to discuss their visions for the future of the river (Mcwhirter, 2019). It could be argued that the dam removal process has created "ecological space" for dialogue, education, and experimentation around new opportunities for managing the fish passage and restoring the wider river ecosystem. This reflects the complicated politics of dam removal more generally, whereby any efforts that successfully focus debates on ecological issues – as opposed to allowing them to become embroiled in local politics – may create more space for cooperation (Fox et al., 2016).

The Penobscot Nation and the Penobscot River: "We are the river, it runs in our veins" (Francis, 2014)

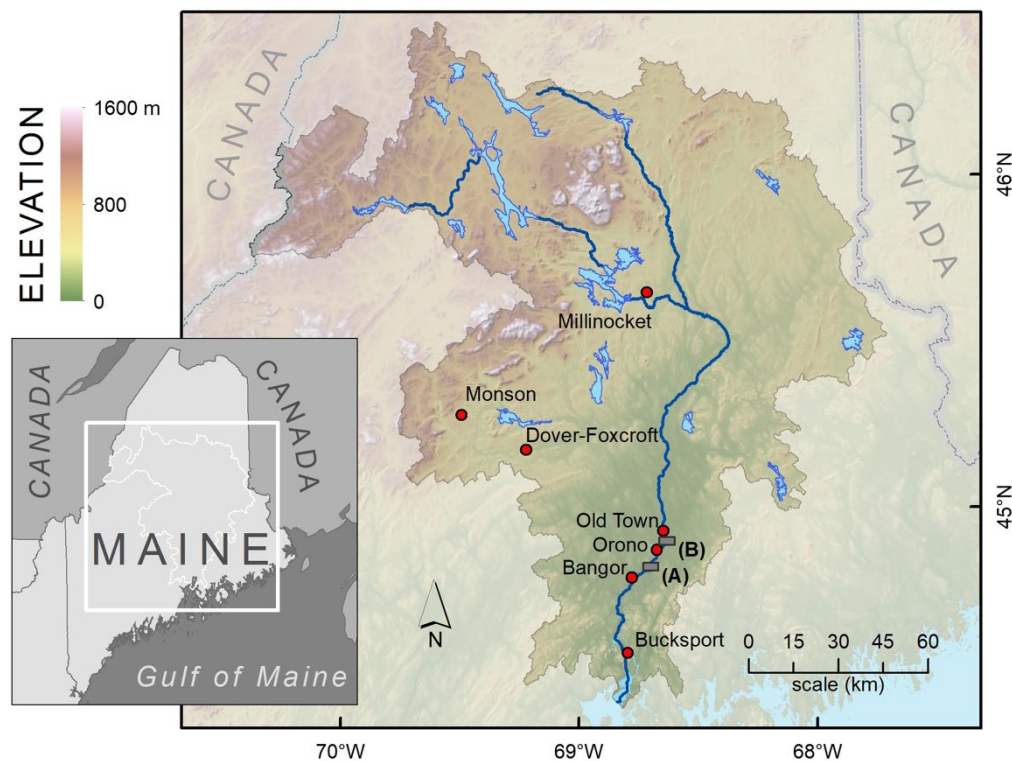
Background

The Penobscot River system is the second-largest in New England, draining an area of 8570 square miles (22,196 sq. km) before flowing into Penobscot Bay (Figure 2). Before the 1830s, there were no dams on the river; today, there are 117 on the river system, with 14 of those generating hydropower. In addition to creating significant barriers for fish passage, dams have supported highly polluting industrial development such as tanneries, sawmills, and paper and textile industries, which have contaminated the river with mercury, dioxins, PCBs, and other pollutants (EPA, 2015). The Penobscot Nation has been deeply affected by the resulting decline in fisheries and the contamination of available fish. The Tribe was consequently instrumental in advocating for the removal of the Veazie and Great Works dams in 2012 and 2013, and it continues to play a central role in ongoing river restoration efforts. As a Tribal member notes, "[for] the Penobscot Nation, this is by far the most important conservation project that the Tribe has been involved with in recent times" (Banks, 2020). Similar to the Ottaway River restoration experience, a core group of Tribal and non-Tribal organisations worked together to negotiate and remove the dams. Removal was associated with shifting power relations related to Tribal recognition, treaty rights, and with the FERC relicensing requirements that provided a "lever" to proceed with removal (Penobscot River Restoration Trust, 2012). The process also brought visibility to cultural and livelihood issues as central aspects of river restoration.

The origins of the Penobscot River Restoration Project date to 1999, when PPL Corporation (a power company) purchased multiple dams on the river from the Bangor Hydro Electric Company. Spurred by hydropower relicensing issues, fish passage concerns, and ecological restoration aspirations, PPL came together with Tribal representatives, federal and state officials, and with environmental organisations to consider comprehensive solutions (The Nature Conservancy, n.d.). These discussions resulted in the Penobscot River Restoration Project and the subsequent formation of the Penobscot River Restoration Trust to oversee dam removal and river restoration. The Trust is a nonprofit entity comprising the Penobscot Indian Nation, American Rivers, Atlantic Salmon Federation, Maine Audubon, Natural Resources Council of Maine (NRCM), The Nature Conservancy, and Trout Unlimited.⁵ In 2004, the Lower Penobscot River Comprehensive Settlement Accord paved the way for the Trust to purchase the Veazie, Great Works, and Howland dams from PPL Corporation; the sale was transacted in 2010 for \$25 million (Lower Penobscot River Multiparty Settlement Agreement, 2004; NRCM, 2019). Using both private and public funds, the two dams were removed in 2012 and 2013, and a fish bypass at the Howland dam was completed in 2016, reconnecting the Piscataquis River to the Penobscot and the Gulf of Maine (Holyoke, 2016). A new fish lift was also installed at Milford dam, which is just upstream from the former site of the Great Works dam. To make up for the loss of power from the two dams that were removed, the Accord allowed PPL to increase power generation at six existing dams; this resulted in 95% of the current energy generation being maintained (Black Bear Hydro, 2012). The removal of the two dams opened 2000 miles (3218 km) of rivers and streams to 11 fish species, including Atlantic salmon and shad (Izzo et al., 2016; NRCM, 2019).

⁵ In addition to the Trust and its members, other partners in the Penobscot River Restoration Project include PPL Corporation, Black Bear Hydro LLC, U.S. Fish and Wildlife Service, Bureau of Indian Affairs, National Park Service, National Oceanic and Atmospheric Administration, State of Maine's Department of Marine Resources, Maine Department of Inland Fisheries and Wildlife, and the former Maine State Planning Office.

Figure 2. Penobscot River map showing the former site of the Veazie dam (A), and the former site of the Great Works dam (B).



Tribal involvement

Members of the Penobscot Nation have fished for more than 10,000 years in the waters of the Penobscot River and their identity is deeply intertwined with the river basin ecosystem. As a Tribal member explains,

A long time ago the People lived along this river, as we do still now. We take our name "*Burnurwurbkskek*" from a place on the river, and later the entire river took its name from us. Our ancestral homeland was a vast network of rivers, lakes and streams that connected the land with the ocean. In the center of this land stands Katahdin, our sacred mountain, that watches over our land and guides the people while on the river. The People have been here since time immemorial (Phillips, 2006: 1).

The Penobscot Nation has long been active in protesting dam construction on their rivers. John Banks is the Director of Natural Resources for the Tribe and has been involved with the removals from the very beginning. As he explains, "We have a long history of advocating for the ecosystem. During colonial times, Tribal leaders traveled by birchbark canoe to meet with the colonial government to protest building of first dams, in the early 1800s with the Industrial Revolution" (Banks, 2020). The cultural disruption from dams and river degradation is difficult to overstate. Fish such as American shad and Atlantic salmon were decimated (Opperman et al., 2011), and any available fish, as well as other wild foods, continue to be heavily contaminated, further restricting Tribal rights. As a former Penobscot Chief notes:

Mercury, dioxin, and other pollutants have entered our water, our air, our fish, our wildlife, our plants and thus our bodies. What effect will this have on our genetic code and our future generations? As indigenous people of this sacred homeland, with this river running through our blood, we have the right to secure the survival of our culture. But to do so, we endanger our health. By continuing to eat the fish and wildlife, by continuing to consume the plants as both food and medicine, we put at risk the very way of life we seek to preserve (Phillips, 2006: 3).

Due to the highly polluted state of the water and other impacts of development, Tribal aspirations for river restoration go beyond dam removal to a concern with the larger ecosystem (Quiring, 2020; McGreavy et al., 2021). As John Banks explains, "We need to focus on all species, not just the Atlantic salmon. It's the game fish that get all the attention due to [Endangered Species Act] issues, but we try to look beyond salmon and look at the river as a whole" (McCool, 2007: 545). These cultural and livelihood motivations to restore the river ecosystem have been supported by treaty rights and legal requirements. The Penobscot Nation gained federal recognition in 1975. This was an important first step in the Maine Indian Claims Settlement Act of 1980, which "provides for the settlement of land claims of Indians, Indian nations and Tribes and bands of Indians in the State of Maine", including the Penobscot Nation (HR 7917, 1980). Recognition also means that the Federal Government has an obligation to ensure the protection of Tribal resources, such as the right to fish within the waters of the reservation (BIA, n.d.; Opperman et al., 2011).

The FERC relicensing process provided another important point of entry for Tribal involvement, creating an opportunity to initiate negotiations around removal. The Federal Power Act (FPA) requires FERC to consult with the U.S. Department of the Interior when a licensing decision may impact Tribal trust resources such as fishing access (FERC, 2019). When FERC was relicensing multiple dams on the river in the late 1990s, the Penobscot Nation demanded that restoration of fish runs be part of the process (Opperman et al., 2011; Botelho, 2013). By making clear their insistence that river restoration be part of any future relicensing decisions, the Tribe laid the groundwork for the Penobscot River Restoration Trust to negotiate the purchase and removal of the Veazie and Great Works dams and to require the construction of fish passage at Howland. This was also made possible by the fact that one entity, PPL Corporation, owned nine dams on the river, including the ones that were sold for removal.

Similar to the Ottawa River case, relationships between the Penobscot Nation, hydropower operators, environmentalists, communities, and state and federal agencies benefitted from the restoration process. While it took 16 years from the start of negotiations to removal, the process has been widely lauded, and there is recognition that it signalled a departure from earlier dam removals in the state, which had involved much looser affiliations of stakeholders (Penobscot River Restoration Trust, 2012). The creation of the Trust and the collaborations that it fostered means that, "the destruction of the dam, Maine's outermost gate to the sea, is about repair and revival of relationships between Tribal people, conservationists, power companies, and sportsmen for whom the river is a lifeline, too" (Botelho, 2013). As John Bullard, northeast regional administrator for the National Oceanic and Atmospheric Administration Fisheries, observed: "We are talking of breaching a dam, but (...) instead I think we are talking about repairing a breach" (Botelho, 2013). Chief Kirk Francis explained what an "uplifting experience it has been for the Tribe to be part of a project where we were given a lot of deference and our opinions were valued" (Holyoke, 2016). The Tribe continues to play a central role in ongoing river restoration efforts, partnering with state and federal agencies and a private company in an ambitious salmon restoration project. At the same time, it is pursuing its rights to clean water by pushing for legislative remedies such as the recently enacted law that creates water quality criteria aimed specifically at protecting the sustenance fishing rights of Maine's Tribes (NRCM, 2019).

The Lower Elwha Klallam Tribe and the Elwha River: "Answered prayers today" (Charles, 2011)

Background

The Elwha River originates from glaciers in the Olympic Mountains, flowing for 45 miles (72 km) to the Strait of Juan de Fuca. It is the least developed river of our three cases, with its watershed being almost entirely within Olympic National Park. Before the construction of the Elwha and Glines Canyon dams in the early 20th century, the river produced nearly 400,000 salmon and steelhead trout; by the early 2010s, there were fewer than 3000 wild fish in the river (Guarino, 2013). The Lower Elwha Klallam Tribe has lived in the region for thousands of years, and the loss of salmon has been devastating for their livelihoods,

health, and culture (Brewitt, 2019). Speaking about the river, a Tribal member explains that, "We cherished it, and we respected it (...). We didn't waste it, we used every bit of it (...). It was a gift from our Creator, it was our culture and heritage" (Charles, n.d.). The Elwha dam was then built on the Tribe's traditional creation site, a physical and symbolic imposition on a heritage deeply bound to the river.

The removal of the Elwha and Glines Canyon dams on the Elwha River in Washington State is the largest dam removal in US history to date (Figure 3). Of the three removals reviewed in this paper, it was the most protracted and contentious, with stakeholders weighing in from well outside the basin. There were jurisdictional complications, a resistant dam owner, and tensions around environmental issues which were not directly related to the dam but which nonetheless impacted perspectives (for example, conflicts over old growth forests and logging).⁶ The Lower Elwha Klallam Tribe has fought for the removal of the Elwha and Glines Canyon dams ever since they were built, so their story has long been deeply intertwined with the process (Guarino, 2013). The dams were finally removed in 2012 and 2014, with ongoing efforts to restore salmon runs. As with the Ottaway and Penobscot cases, the Tribe drew upon treaty rights, benefitted from FERC relicensing requirements, and worked with a broad coalition of interest groups to pursue removal. Salmon also played a prominent role in this removal. Salmon are not only critically important for the Tribe's health, culture, and well-being; they also are highly valued by the larger non-Native community. Certain species, such as the Chinook in the Elwha, are federally listed under the Endangered Species Act, which offers the fish significant protection from harm and thus is another point of entry for dam removal advocates.

Tribal involvement

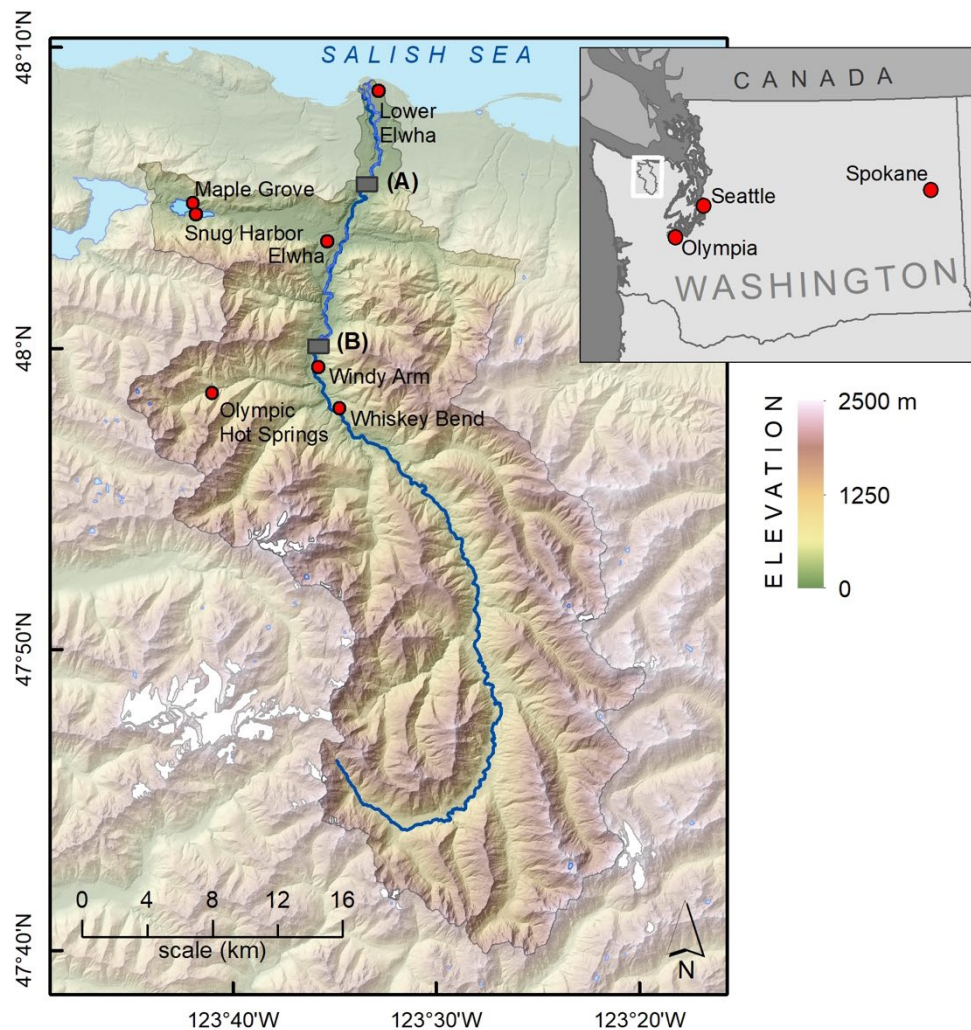
In 1855, the Lower Elwha Klallam (along with the Chemakum and Skokomish) Tribes were forced to sign away lands in the Treaty of Point No Point in exchange for reservation land and cash. The treaty promised that "the right of taking fish at usual and accustomed grounds and stations is further secured to said Indians" (Treaty of Point No Point, 1855); however, after the Elwha and Glines Canyon dams were built in 1913 and 1926 to generate power for Port Angeles, the Tribe could no longer exercise its legal right to fish since the dams devastated fish runs. Glines Canyon dam was granted a 50-year license in accordance with the Federal Power Act, but the Elwha dam, built before 1920, was never licensed (Brewitt, 2019: 41). Neither dam included fish passage.

The Lower Elwha Klallam opposed the dams from the start, but Tribal advocacy for dam removal became more organized after 1968 when the Tribe gained federal recognition. In the 1970s, this recognition allowed them to intervene in FERC's relicensing decisions. In 1978, when the Elwha dam failed a federal safety inspection,

the Tribe took over when no other government was able to act effectively. It hired an engineering firm, proved Federal Energy Regulatory Commission (FERC) jurisdiction, modeled the "probably maximum flood", carried out the necessary dam structure failure analysis, and simulated a catastrophic failure bore wave to demonstrate the risk to federal lands on the Reservation (Busch, 2008: 9).

⁶ See Brewitt (2019) for an excellent, in-depth examination of the full dam removal process on the Elwha.

Figure 3. Map of the Elwha River showing the former site of the Elwha dam (A), and the former site of the Glines Canyon dam (B).



In 1979, FERC decided to treat the Elwha and Glines Canyon dams as one project, and it began issuing annual operating licenses; this lasted until the mid-1980s. The process was complicated by the fact that Glines Canyon was now in Olympic National Park, and the Federal Government could not issue licenses for hydropower projects in a national park (Guarino, 2013; Brewitt, 2019). Additionally, the 1974 Boldt Decision determined that, as part of a larger reaffirmation of reserved rights to co-manage fisheries, Tribes were entitled to half the fish in Washington State (United States v. Washington, 1974). Securing those rights required a restored river. In 1986, the Electric Consumers Protection Act (ECPA) was passed; this both increased FERC's regulatory and enforcement abilities and raised the environmental standards for dams. Specifically, the statute requires FERC "to give equal consideration to the purposes of energy conservation and protection; mitigation of damages; enhancement of fish and wildlife the protection of recreational opportunities; and the preservation of other aspects of environmental quality while issuing license" (US Legal, 1986). FERC opened a comment period, and the Lower Elwha Klallam Tribe became the first intervener in the licensing process to officially call for dam removal. The Tribe then used funds allocated by the Bureau of Indian Affairs to finance studies that proved that dam removal was not only the best environmental option but was more cost-effective than any other dam alteration (Guarino, 2013). By 1989, FERC announced that it would prepare an Environmental Impact Statement (EIS) to help

evaluate the feasibility of dam removal, while the Tribe funded another study to analyse specific plans for dam removal (Gowan et al., 2006). Before FERC reached a decision regarding dam removal, however, Congress essentially authorised its removal by passing the Elwha River Ecosystem and Fisheries Restoration Act in 1992, which called for "full restoration of the Elwha River ecosystem and the native anadromous fisheries" (H.R. 4844, 1992).

The Tribe also took the initiative to work with local stakeholders and governmental actors. It helped to establish the Joint Fisheries and Wildlife Agencies (JFWA) coalition, which included the Washington Department of Fish and Wildlife, the Point No Point Treaty Council, the Department of the Interior, and the National Marine Fisheries Service. This was particularly important given that the then owner of the dams, James River Corporation, was arguing for relicensing with fish passage. James River had created its own dam removal study, which emphasised how demolition would release a great deal of sediment into the area. The Tribe funded a counter-study, however, which proved that the river would flush out the extra sediment over time (Gowan et al., 2006). The Tribe also insisted on full ecosystem restoration, "and for the first time, the agencies and stakeholders were using the language of environmental restoration rather than economic motives as a case for dam removal" (Gowan et al., 2006: 514). Similar to the Ottaway and Penobscot restorations, which were about more than just dam removal, the Lower Elwha Klallam's advocacy and work on restoration has been characterised by a holistic approach (Brewitt, 2019: 79). As a Tribal elder noted, "It's not just about taking the dams out, or even just putting the fish back. It's about the whole picture, the human population, marine predators, overfishing, the works. If the system is addressed, then maybe restoration will work" (Bolstrom, n.d.). Today, the post-removal river is the focus of intense monitoring and study by Tribal and non-Tribal natural resource managers, including the Lower Elwha Klallam Tribe, Olympic National Park, NOAA Fisheries, U.S. Fish and Wildlife Service, U.S. Geological Survey, and Washington Department of Fish and Wildlife.

DISCUSSION

The Grand Traverse Band of Ottawa and Chippewa Indians, the Penobscot Nation, and the Lower Elwha Klallam Tribe have all been disproportionately impacted by the construction of dams on their rivers. Each Tribe has also been instrumental in the fight to remove those dams. Tribes were key members of coalitions, forming alliances and working with non-Tribal partners to achieve their goals. As coalition members, their cultural and spiritual connections to their rivers meant that they were "viscerally committed to dam removal" (Brewitt, 2019: 58). Both before and after dam removal, Tribes shared aspects of their relationships with their rivers with non-Native communities. This occurred through videos, public ceremonies, and everyday interactions during the dam removal processes. In all three cases, Tribal involvement in dam removal can be understood as "placework", whereby place "speaks, creates, and teaches", allowing us to learn about reciprocity and about our responsibilities to human and non-human forms of life (Larsen and Johnson, 2016: 152). It is about restorative justice for both rivers and people. While more research is necessary to understand the impact on the wider community, non-Native partners in river restoration seem to benefit from this placework, expressing admiration for Tribal partners and a newfound understanding of Tribal relationships with their rivers. As a US Fish and Wildlife partner working on the Ottaway explains, "I have always admired the Native Americans for their philosophy as far as how they treat Mother Earth. But to meet those folks and work side-by-side with them has really been an honor" (Westerhoff, 2017). Penobscot Nation member John Banks noted that dam removal and river restoration left him feeling optimistic, because it seemed that modern science came closer to Indigenous knowledge during the process and that the "big thing was just to understand that everything is interconnected in the natural world and we are part of that, we are not separate from it" (Crowell, 2017). In each river basin, sentiments such as these suggest open-ended and flexible relationships between Native and non-Native community members that are focused on environmental restoration (Tsing, 1999).

Successful environmental partnerships between Tribes and non-Native organisations or governments are relatively uncommon. Each of the three cases presented in this paper demonstrates the enactment of several principles for successful environmental collaborations involving Tribal partners. First, each of the three dam removal partnerships created "geographies of inclusion" through shared commitments to rivers and watersheds (Grossman, 2005). Within these committed partnerships, everyone regarded themselves and their partners as 'insiders' due to concern for the current and long-term health of their river. Additionally, the partnerships included Tribes from the beginning and respected the importance of Indigenous knowledges to the success of the dam removals (Reo et al., 2017; Whyte et al., 2017.) Tribes brought science and engineering expertise by leading engineering feasibility studies and monitoring the ecological outcomes of the dam removals. It has become relatively commonplace for Tribes to take the lead in these sorts of scientific and engineering studies in natural resource management contexts; however, many non-Indigenous people, including natural resource professionals, are unaware of such Tribal capacities. These cases therefore complicate the stereotypical view of Tribes as lacking such technical expertise.

The cases also reveal the "complex ways that indigeneity has been entangled with nature conservation over time (...) and the hybrid socio-natures that are emerging and being debated as a result" (Hope, 2017: 74). Our investigation of dam removal does not begin with assumptions about the "conjoining of indigeneity with the environment" (Yeh and Bryan, 2015: 536) or the common trope of Indigenous peoples living in perfect harmony with nature. Yet, in each river basin, the involvement of Tribes created space for valuing the river in different ways, going beyond debates about, for example, the economic versus environmental costs and benefits of dam removal. Each Tribe was guided by the overwhelming importance of spiritual connectedness to its river, understanding the river as an ancestor and a sacred being (Phillips, 2006). These relationships are a reaffirmation of the "relational and non-dualistic worlds" that characterise Indigenous ontologies (Escobar, 2016: 23), speaking to the ways in which, "Indigenous principles of guardianship inform distinctive approaches to environmental governance" (Coombes et al., 2012: 818). However, hybrid socionatures and complicated entanglements of Tribes and rivers are also evident in the river restoration projects. This complexity is well demonstrated by Tribal support for hatcheries in the restored Elwha River; such hatcheries are opposed by many environmentalists who see this decision as environmentally problematic because of potential impacts on native anadromous fish (Gottlieb, 2017).

A political ecology approach emphasises that environmental projects are never just technical interventions; rather, dam removal as environmental restoration is highly politicised, and how political situations change with Tribal involvement is an emerging dynamic. In each of our cases, we found that dam removals reflected the growing political power of Tribes and their consequent advanced influence. Moreover, because Tribal political power exists in the context of historical marginalisation and dispossession, "historical experiences and discourses of indigeneity" are shaping "claims for identity and nature" (Hope, 2017: 80). In other words, "these river restoration projects are really Tribal restoration projects; they are part of an effort to restore cultural tradition, sovereignty, and self-reliance" (McCool, 2007: 561). In the case of dam removals, political power is bound up with legal rights that are associated with federal recognition, treaties, and FERC's obligation to consult during the relicensing process, all of which create important leverage points around which Tribes can mobilise. This is clearly one of the ways in which the politics of dam removal shift with Tribal involvement. As Brewitt (2019: 90) notes about the Elwha removals,

The Tribe, using the fishery and the rickety lower dam just above the reservation, leveraged its treaty rights to pressure decision-makers, a political power source totally different from that of agencies or private groups. There was some sense that if ever negotiations really fell apart, the tribe would be able to send the matter to federal court immediately.

Not only do treaty rights ensure that Tribes retain specific power vis-à-vis the legal process, but FERC relicensing also "provides a venue for re-negotiating societal values in dammed watersheds" (Chaffin and Gosnell, 2017: 820). Tribal involvement in these negotiations can create opportunities for a different set of values and worldviews to inform decision-making around rivers more generally.

CONCLUSION: TOWARDS RESTORATIVE ENVIRONMENTAL JUSTICE?

In the three river basins that we studied, Tribes were "subject to rationalities of resource management (...) to which they do not consent" (Bridge et al., 2015: 3) through the damming and degradation of their rivers. Tribal involvement in dam removal in the Elwha, Penobscot, and Ottaway Rivers reflects the shifting landscape of environmental politics whereby there has been an increasing incorporation of cultural and justice issues into environmental restoration (Wehi and Lord, 2017). Significantly, adopting a more "biocultural" (Morishige et al., 2017) or "ecocultural" (Tipa and Nelson, 2017) approach to restoration is correlated with successful outcomes (Reyes-Garcia et al., 2019), as measured both ecologically and socially. Tribes bring more than cultural resources to river restoration, however, and our research demonstrates that, in these cases and across the US, Tribes are playing diverse roles in dam removal initiatives. Key roles include creating an initial spark of interest for dam removal through cultural and moral claims, moving projects forward using political claims of sovereignty and treaty rights, raising and accessing funds otherwise unavailable to dam removal proponents, fostering positive relationships within diverse teams and communities that sustain the work, and providing technical and environmental expertise.

We also find evidence of Tribes affecting the nature and practice of river restoration through dam removal. An important characteristic of our three cases is that each one involved more than one dam removal and, as mentioned earlier, in each basin Tribes were concerned with river restoration at broad spatial scales; it was never *just* about dam removal as an end in itself. As one Tribal elder explains,

The Penobscot Nation is committed to continue our efforts until the fish, wildlife and plants are safe to eat, and the sacredness is restored to the river. Only then, will our culture be whole again. Only then, will harmony be restored within the Sacred Circle of Life (Phillips, 2006).

Not only is the spatial scale expanded to the wider ecosystem, but Tribal members repeatedly speak about ancestors and future generations as being part of the process. A GTB elder explains that they "look ahead to seven generations" in their environmental restoration projects (Berry, 2017). On the day the Great Works dam on the Penobscot River started to come down, an elder observed that, "[t]he ancestors are smiling today" (McCrea, 2012). As the words of these elders so clearly demonstrate, and as the cases show, Tribal involvement in dam removal helped to make the projects more "temporally and spatially inclusive" (Behn and Bakker, 2019: 114), in the process restoring human – river relationships.

Dam removal is, at its core, an act of restorative environmental justice. Restoring human – river relationships is an enactment and expression of "a geography of hope" (Manning Middleton Manning, 2019: 13) and nowhere is this more evident than when Tribes are involved. Restorative environmental justice is about acknowledging past and ongoing injustices to cultures and ecosystems and about "hearing and being heard" (Hill et al., 2019: 183). In the case of dam removal, Tribes are being heard and the damage to both human and non-human worlds from dam construction and river degradation is being acknowledged. Our research suggests, moreover, that working with Tribes on dam removal projects is generating a deeper understanding of, and respect for, Indigenous water ontologies within the non-Native community. In the US, where water has been viewed as a resource to exploit for human benefit, the sacred responsibility that Tribes feel for their rivers offers all of us important lessons about how to repair and restore our relationships with river ecosystems.

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