

Getting to ecosystem-based function: Exploring the power to influence Columbia River Treaty modernization towards ecosystem considerations

William Jesse Baltutis ^{a,*}, Michele-Lee Moore ^b, Stephen Tyler ^c

^a *Department of Geography, University of Victoria, Victoria, Canada*
Email: baltutis@uvic.ca

^b *Stockholm Resilience Centre, Stockholm, Sweden*
Email: mlmoore@uvic.ca

^c *Adaptive Resource Management Ltd., Victoria, Canada*
Email: stephen@adaptiverm.ca

Abstract

Governance of international rivers is shifting to include a diversity of actors below the nation state, and interests beyond those traditionally conceived to facilitate economic growth and security, such as hydropower and flood risk management. Consequently, the degree and mechanisms of influence and power of these new actors is of increasing interest in transboundary water governance scholarship, to understand whose voices are heard and whose interests are included in decision-making processes. We introduce a typology of power developed by Barnett and Duvall (2005) to illustrate the influence of Indigenous nations and local actors to position ecosystem-based function as a primary objective for modernization of the 1964 Columbia River Treaty (CRT) in the Pacific Northwest of North America. We identify four themes that emerged from the data analysis that explain the influence of Indigenous nations and local actors on CRT modernization: a shift in the legal landscape regarding Indigenous rights and title in resource management; an evolution in societal values regarding environmental issues; efforts of Indigenous nations and local actors to frame the issues for CRT modernization; and, engagement of Indigenous nations in transboundary collaboration for CRT modernization. The conclusion draws lessons for how these types of power can shape the course of traditionally state-centric transboundary water governance processes.

Keywords: influence, power, Columbia river basin; Columbia river treaty modernization; ecosystem-based function

1. Introduction

Signed in 1961 and ratified in 1964, the Columbia River Treaty (CRT) between Canada and the United States achieved cooperative development of the Columbia River for the benefit of a narrow set of interests, specifically, hydropower and flood risk management.

* Corresponding author

The CRT reflects an approach to transboundary water governance that allocates ownership and responsibility of waters to sovereign nation-states based on traditional understandings of territoriality (power of a state over a defined geographical area), wherein water is considered the responsibility of a state while it is flowing through its defined state borders (Blatter and Ingram, 2000; Cosens, 2012; Vogel, 2012). Transboundary water governance and management objectives used by nation-states are often narrowly conceived to facilitate industrial, resource, and to some extent, urban development for economic gain (Heasley & MacFarlane, 2016). As stated in the opening lines of the Columbia Treaty, the focus was very much on flood protection and long-term resource development for the economic prosperity of Canada and the U.S., reflecting human ambition over nature.¹

Following the signing of the CRT on January 17th, 1961, a press release by Prime Minister Diefenbaker illustrates, by what is not mentioned, the framing of the CRT; at no point are impacts to ecosystems and fisheries, particularly salmon, nor infringement on Indigenous² traditional territories or rights, mentioned in the 9-page document (Columbia River Treaty, 1964). This was emblematic of government position at that time, which excluded Indigenous communities from participation in decisions impacting their lives and livelihoods and ignored the autonomy and self-determination of the different Indigenous nations in the basin.

Beginning in 2024, either Canada or the U.S. can unilaterally decide to modify or terminate substantial parts of the treaty, as long as 10 years notice is provided. Separately, the Province of British Columbia (the only province that falls within the basin on the Canadian side), and the Sovereign Review Team in the U.S. initiated a multi-year comprehensive CRT review starting in 2011 to hear from Indigenous nations, communities, and interests in the basin about what a modernized CRT should include. Efforts of Indigenous nations, as well as non-Indigenous local actors, to engage or participate in transboundary water governance processes and the new perspectives that these actors bring regarding numerous social, ecological, and cultural issues have begun receiving attention (Conca, 2006; Finger, Tamiotti & Allouche, 2006; Myint, 2012; Norman, 2015). Question remains though, regarding the power of these actors and their engagement. Thus, our analysis focuses on the power of Indigenous nations and local actors (i.e., local government, advisory committees) in the Columbia basin, and whether and how they have shaped current and ongoing efforts to review and modernize the 54-year-old Columbia River Treaty (CRT) between Canada and the United States.

Using a framework of power by Barnett and Duvall (2005), we illustrate a diversity of Indigenous nations and local actors have influenced the agenda for CRT renegotiation

¹ The opening lines of the 1961 CRT state: “The Governments of Canada and the United States of America . . . being desirous of achieving the development of those resources [of the Columbia River] in a manner that will make the largest contribution to the economic progress of both countries . . . secured by cooperative measures for hydroelectric power generation and flood control” (Columbia River Treaty, 1964).

² In this paper, to refer to Indigenous nations above the 49th parallel we use the term ‘First Nations’, and the term ‘tribes’ for below the 49th parallel. We use the term ‘Indigenous’ to refer generally to tribes *and* First Nations.

to seriously consider ecosystem-based function as a primary objective of a modernized CRT.³ To do so, we use this framework of power to understand four themes that emerged from the data analysis. Specifically, two themes emerged that illustrate institutional power of Indigenous nations and local actors: (1) a *shift in the legal landscape* regarding Indigenous rights and title, and environmental issues in resource development projects; and (2) an *evolution in societal values* regarding environmental issues. Building on institutional power, two themes emerged that illustrate the mobilization of productive power: (3) efforts of Indigenous nations and local actors to *frame the issues* for CRT modernization; and, (4) engagement of Indigenous nations in *transboundary collaboration* for CRT modernization.

Although there are a number of other issues that are significant for modernization of the Treaty, such as a changing climate with impacts on basin hydrology (Barnett et al., 2008; Brown, 2015; Bode, 2017), we limit our focus on the inclusion of ecosystem-based function as part of a modernized CRT.

We argue that positioning modernization of the CRT as the purview *only* of sovereign nation-states ignores the multi-scaled governance processes involved. These multi-scaled processes include a diversity of Indigenous nations and local actors who are influencing Treaty modernization, some of whom collaborate across the international border to achieve governance objectives. In doing so, our analysis illuminates how the necessary shifts in power for Indigenous nations within traditionally state-centric transboundary water governance processes are emerging. We begin with a brief and recent history of the Columbia River and the CRT, before outlining the framework of power we use from Barnett and Duvall (2005) to understand the themes that emerged in our analysis. We outline the grounded theory methods employed in our empirical research and analysis before exploring each theme in turn. We discuss the implications of our research for governance of transboundary waters, and specifically, the Columbia River.

However, before going any further, we want to clarify our own positionality. This study began as an exploration of non-state actors using a grounded theory approach, and it was not until we were through part of the iterative data collection and analysis, and reaching close to theory saturation (Corbin & Strauss, 2008), that our central patterns were concentrated on Indigenous nations and their forms of power. We want to be clear that we are not

³ We adopt an understanding of ecosystem-based function in the context of the Columbia River from the Columbia River Inter-Tribal Fish Commission as “the ability to provide, protect, and nurture cultural resources, traditions, values and landscapes throughout its length and breadth” (CRITFC, 2017, paragraph 1). According to this definition, ecosystem-based function can include specific management targets, including higher and more stable headwater reservoir levels, higher river flows during dry years, as well as a number of expected results, including increases in juvenile and adult salmon survival (CRITFC, 2017). Though the term ‘ecosystem services’ has been used extensively to refer to natural goods with economic values and benefits to humans (Lele, Springate-Baginski, Lakerveld, Deb, & Dash, 2013), CRITFC adapted this concept to more accurately reflect the belief the ecosystem is not to ‘service’ humans only, but has intrinsic value and must be protected. According to an interviewee with the CRITFC, the term ‘ecosystem-based function’ was used – as opposed to ‘ecosystem services’ – to distinguish from a “deminimis approach to resource management” that is associated with the term ecosystem services (CB23S41).

claiming that Indigenous nations and organizations within the basin *only* exhibit institutional and productive power. Also, we acknowledge that as white settlers who themselves live and work on unceded traditional territories, that our study must not be interpreted or used as any representation of Indigenous claims on power and sovereignty, which Indigenous scholars, activists, hereditary and nominated leaders, and entire communities have been articulating for more than a century.

Moreover, we recognize the complexity of using broad terms to describe a diversity of Indigenous communities, and that any and all of the terms we have used in this article – including settlers’, colonial, Indigenous – are widely debated themselves and often create discomfort. The terminology is imperfect and evolving, and is likely to be different in only a few more years. Therefore, we offer this analysis, at this particular point in time, in the understanding that we need a wide range of knowledges about how governance systems can shift and be re-shaped by actors beyond central settler governments. We further aim to highlight how, from our way of knowing, our evidence shows the critical role and efforts that Indigenous nations have already held throughout the modernization discussions of the CRT and its governance. We believe that it is not only up to Indigenous colleagues to show how governance systems have marginalized the authority and autonomy of Indigenous nations in the past but how strong the articulation of their values remains and how that is already reshaping transboundary water governance today. It is also up to settlers to confront the many challenges our governance structures and processes have created and continue to create, and to contribute to developing opportunities to also consider, co-create, and debate alternative governance arrangements for the future.

2. Context: A history of the Columbia River

The Columbia River Basin includes the traditional territories of 18 First Nations in Canada⁴ and 15 Tribes in the U.S., many of whose traditional lands span what is now the 49th parallel dividing Canada and the United States (Columbia River Inter-Tribal Fish Commission [CRITFC], 2016), and who have held jurisdiction and responsibility over their lands since time immemorial. Non-Indigenous development on the Columbia River, outside of any international water treaty, started in earnest in the 1890s, when the first dams in the Columbia River basin were built at lower Bonnington Falls on the Kootenay River in B.C., and Spokane Falls on the Spokane River, Washington (Thompson, Palleson, & Lemon, 1996). These early developments initiated the physical reconfiguration of the river, its tributaries, and boundaries, from a free flowing river supporting diverse socio-ecological environments to what one interviewee in the West Kootenays described as “an industrial river”, developed to meet a limited set of values. Of most concern to fisheries on the Columbia

⁴ The Canadian Federal government declared the Sinixt people extinct in 1956 after the death of the last surviving registered Sinixt woman (Sinixt Nations, 2016). Despite this, Sinixt descendants still remain in the Columbia River basin on both sides of the 49th parallel (Sinixt Nations, 2016).

River main stem (though not the first dam to impede migration of fish in the basin) was the construction of Grand Coulee dam, completed in 1942, which virtually eliminated the entire anadromous fish population on the upper Columbia, and cut off salmon migration to the Canadian Columbia River (Thompson et al., 1996). The result is currently more than 55% of spawning and rearing habitat (or about 1770 km) once used by salmon and steelhead in the Columbia Basin is permanently blocked by dams (Canadian Columbia River Inter-tribal Fisheries Commission [CCRIFC] & CRITFC, 2015, p. 2; Harrison, 2008).

Since 1909, transboundary waters between Canada and the United States have been governed under the framework of the *Boundary Waters Treaty*, which set out the rights and responsibilities of the two countries in regards to shared freshwater resources (Norman, Cohen & Bakker, 2013). The 1909 Treaty also established the *International Joint Commission* (IJC), a bi-national body with a mandate to prevent and resolve conflict over inland waters shared by Canada and the U.S. (Bleser & Nelson, 2011; Clamen & Macfarlane, 2015). In 1944, the IJC began a study of the Columbia River system to make recommendations to Canada and the U.S. on the feasibility of coordinated hydro development and flood mitigation options for the Columbia River (Muckleston, 2003). Completed 15 years after the IJC reference, the study concluded cooperative development for hydropower and flood control was feasible, leading to the negotiation and signing of the CRT in 1961 between the Canadian and U.S. governments (Muckleston, 2003). Such state-based processes illustrate an implicit assumption about power and governance (Brambilla, 2015), which acts to reinforce the territoriality of nation-states over mutually exclusive territories separated by borders (Nadasdy, 2012; Newman & Paasi, 1998). The result of which was a large number

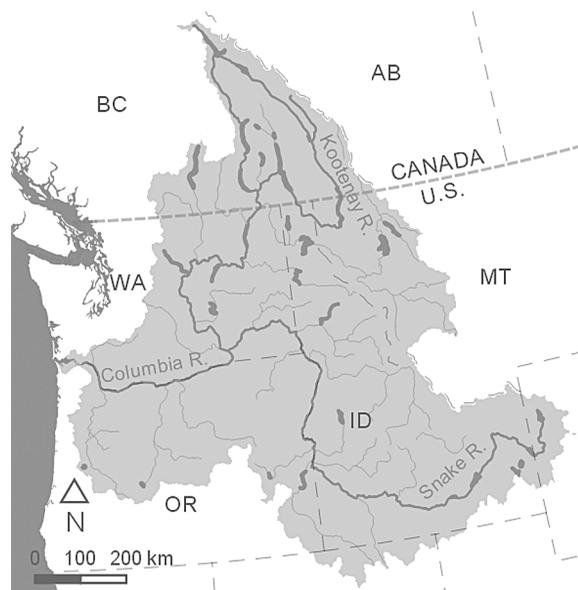


Figure 1: Map of the Columbia River basin
Source: Hailey Eckstrand, 2018

of Indigenous Nations with traditional lands within the basin as well as local communities left out of any formal negotiation or decision-making processes for the Columbia River Treaty (Loo, 2004; Paisley, McKinney, & Stenovec, 2015).⁵

When the Treaty was developed in the 1960s, it did not account for the important role habitat, streamflow, water quality, and related functions play in overall ecosystem health (Swainson, 1979; U.S. Entity, 2013) a common theme during the history of water-related infrastructure development globally (Conca, 2006; Windsor & McVey, 2005). Nor did the Treaty account for the cultural, economic, social, spiritual, and political importance of salmon to Indigenous communities (CCRIFC & CRITFC, 2015). Indigenous nations and non-Indigenous communities in the basin had no ‘voice’ at the negotiation table in the early 1960s to speak to different values that were being adversely impacted. Governance arrangements for the Columbia River have provided the Treaty Entities (B.C. Hydro, Bonneville Power Authority, U.S. Army Corps of Engineers) the largest degree of authority over how water and water-related resources (i.e., hydropower) are managed in the system.

3. Methods

Empirical data used for our analysis relied on qualitative research, informed by grounded theory, as well as case study research methodology and research design. Research was conducted in the Columbia River basin by the principal author as part of a broader study on influence of non-state actors on transboundary water governance processes.

Consistent with qualitative grounded theory methods, we used a series of in-depth semi-structured interviews guided by open-ended questions with a purposive sample of community leaders, community members, local elected officials, NGO representatives, academic experts, local and provincial government, members of Indigenous-led organizations, and private sector representatives across the basin (n=26). Interviews were transcribed and memos written immediately after each interview. Theoretical sampling techniques were used to determine further information sought from interview participants, consistent with qualitative research and grounded theory methods (Chiovitti Piran, 2003). While interviews focused mostly on Canadian participants (84 percent), participant-observation by the principal author in a series of regional workshops on the CRT in Canada and the U.S. provided further opportunities for learning from policy makers, Indigenous community leaders, large water users, and others who have an interest (personal, spiritual, cultural, and/or professional) in governance of the Columbia (see appendix for full list of events attended by principal author).

The principal author relied on memoing as a written record during data gathering, noting and recording early findings, analytical insights, and ongoing developments of the research (Corbin & Strauss, 2008). We use direct quotes from the participants, who are

⁵ Public hearings concerning Treaty Dams built in the Canadian basin were held *after* the CRT was signed on January 17 1961, and “addressed licensing conditions and compensation . . . indicating that the fate of Kootenays’ residents had already been decided” (Toller & Nemetz, 1997, p. 20).

identified only by number to protect confidentiality, though references to organizational types are used where it will not cause risks for any participants. The open and axial coding stages (Corbin & Strauss, 2008) process identified key themes of influence and power. In the final selective coding stages, the codes that had been inductively generated were sorted into categories informed by Barnett and Duval's typology of power. Considering 'all is data' in grounded theory methodology (Glaser & Holton, 2004), we also drew on historical records and accounts about the Treaty and relevant initiatives in the basin to support findings and inform themes emerging from the grounded theory process. While we found that drawing upon concepts developed by international relations theorists Barnett and Duvall (2005) provides a robust framing for the themes that emerged when coding the data, we acknowledge that their framework neglects other conceptions of power from other worldviews. This poses a genuine risk in any discussion about Indigenous nations given the difficulty of aligning conceptions of power from Euro-western perspectives with Indigenous-led initiatives, considering power is tied to notions of sovereignty and empowerment of Indigenous communities towards "political, economic and cultural integrity" (Wilkins, 2002 in Stark, 2013, p. 342).

The next section will establish the lens used to understand how institutional and productive forms of power, as described by Barnett and Duvall (2005), are mobilized by local actors in the basin and Indigenous nations working across the international boundary between Canada and the U.S. We argue this mobilization of power has influenced CRT modernization, and cannot be adequately accounted for within a 'bordered' notion of power. We illustrate this by examining initiatives of Indigenous nations and local actors to drive ecosystem-based function as a primary objective – alongside hydropower and flood risk management – of a modernized CRT.

4. Power

Theories on power and the different types of power are an important concept worth further analysis to inform more socially and ecologically integrated approaches to resilience studies and governance (Boonstra, 2016; Moore & Tjornbo, 2012), including for water. This is an area in which literature from studies of political science and global governance can offer theoretical insight (Arts, 2003; Bachrach & Baratz, 1962; Barnett & Duvall, 2005; Hayward & Lukes, 2008).

Perhaps the most conventional conceptualization of power rose from early efforts of Dahl (1957), who defined power in terms of a causal relation between people. Dahl (1957) argued "A has power over B to the extent that he can get B to do something that B would not otherwise do" (p. 202–203). That is, in Dahl's view, power is an instrument of the powerful over the powerless (Hayward, 2000). Spawned by Dahl's early writings, debates over the concept of power have expanded, with scholars developing numerous typologies and clusters of characteristics in their attempts to distinguish among different forms (or 'faces') of power (Arts 2003; Bachrach & Baratz, 1962; Boonstra, 2016; Clegg, 1989;

Lukes, 1974).⁶ These forms of power are often considered in the context of the nation-state, or what Barnett and Duvall (2005, p. 2) call the “tunnel vision when identifying power”. Yet, shifts in conceptualizations of power have demonstrated other actors beyond the state as also possessing power (Betsill & Corell, 2008; Mathews 1997). Power in social relations between actors can range from visible activities (forcing in direct confrontation), less visible activities (shaping of conditions), to hidden activities (shaping of preferences, desires, or beliefs), with the intent to influence outcomes (Boonstra, 2016).

Barnett and Duvall (2005, p. 3) contend that power can be expressed as four inter-related yet distinct forms: compulsory (direct control over another), institutional (actors control over others in indirect ways), structural (direct and mutual constitution of the capacities of actors), and productive (socially diffused production of subjectivity in systems of meaning and signification). We find evidence of the use of power of Indigenous nations and local actors on CRT modernization, best understood in terms of institutional and productive power.⁷ Exploring institutional and productive power of Indigenous nations and local actors in the Columbia River basin assists us in understanding power outside of the “tunnel vision” which so often embeds discussions within the context of state-based actors acting within or representative of geographical borders. This analysis contributes to previous discussions arguing, “control over discourses is a source of power” (Anderson & Grinberg, 1998, p. 333).

Institutional power is understood as “actors’ control of others in indirect ways”, where the focus is on formal and informal institutions mediating between actors (Barnett & Duvall, 2005, p. 15). Indigenous nations can be seen to possess institutional power through laws and policies that have evolved from assertion of Indigenous claims to rights and title over their traditional lands, as well as the constitutionally-protected rights of Indigenous nations to be consulted and accommodated by Federal and Provincial governments in regards to decisions that affect Indigenous interests. An evolution of environmental laws since the CRT was signed also provides institutional power to non-Indigenous actors, whereby laws and regulations have established the ‘environment’ as a legitimate interest in decision-making processes.

Productive power is understood as “the diffuse power that stems from being able to shape, influence or embed ideas, knowledge, norms, and discourse” (Moore & Tjornbo, 2012, p. 7). An important implication of productive power is that it “concerns discourse, the social processes and the systems of knowledge through which meaning is produced, fixed, lived, experienced, and transformed” (Barnett & Duvall, 2005, p. 20). Analysis of productive power illustrates the social processes through which Indigenous nations and local actors produce systems of knowledge, meaning (i.e., what counts as a problem), norms, and frame discourses

⁶ It is beyond the scope of this paper to explore and explain the various interpretations of ‘power’ in the literature. Suffice to say, the authors recognize the literature distinguishes between various typologies of power, and recognize power is one of the most contested concepts in political science (Hay, 1997).

⁷ Although there is overlap between the different types of power within Barnett and Duvall’s framework, to make argumentation and claims as clear and distinctive as possible, the article focuses on institutional and productive power.

and ideas in ways that shapes the political and economic activities of other actors. By framing, we mean highlighting particular problems, defining how the issue of ecosystem-based function was conceptualized, and who has the responsibility to act (Betsill & Corell, 2008).

Given the complexity of the real world, distinctions between the different types of power under Barnett and Duvall's typology are often analytical in nature, yet empirically interdependent. Different forms of power can overlap in meaning, thus analysis of one type of power does not indicate the complete absence of another. Institutional power of Indigenous nations and local actors has increased since the CRT was first negotiated and signed, reflecting the exercise of productive power of these actors over time to influence the political and legal discourse concerning Indigenous rights and title, and environmental protection. This is not captured in traditional power discussions that tend to center the nation-state as the primary object of power – that is, power from the top down (Hurrell, 2005). The use of Barnett and Duvall's framework of power provides a useful lens to illustrate the role of Indigenous nations and local actors to influence this international process. In doing so, we highlight the limits of a sovereign nation-state model for renegotiation of the CRT.

5. Getting to ecosystem-based function: Influencing Columbia River Treaty modernization

We illustrate the influence of Indigenous nations and local actors to position ecosystem-based function as a new and fundamental objective for CRT modernization through a set of key themes emerging from the empirical data. We argue the themes exhibit an evolution of institutional power and a mobilization of productive power of Indigenous nations and local actors since the CRT was originally signed. The themes include: shift in the legal landscape, evolution of societal values, issue framing, and transboundary collaboration.

5.1. Shifts in the Legal Landscape: Evolution of Institutional Power

Using the framework of power from Barnett and Duvall (2005), we can see the institutional power of Indigenous nations has changed since the CRT was first signed in 1961. This change has emerged from an evolution in the legal landscape in both Canada and the United States affirming Indigenous nations a formal role in resource management decisions. In Canada there is now a legal obligation on the federal government to engage on a nation-to-nation basis regarding issues impacting Indigenous lands, rights, and interests. And, this growing institutional power reflects a longer exercise of productive power of Indigenous nations to influence political discourse in both Canada and the U.S. regarding Indigenous rights. Decisions made in one set of institutions – courts and treaties – have over the years influenced the participation of Indigenous nations in the institutional context of CRT modernization.

We can observe the change of institutional power of Indigenous nations since the CRT was first signed in 1961. For example, First Nations have constitutionally protected rights to consultation and, if appropriate, accommodation concerning traditional lands and resources under the Canadian *Constitution Act* (1982), with successes in the courts to

uphold Aboriginal title (i.e., *Tsilhqot'in Nation v B.C.* 2014) and Tribal treaty fishing rights (*United States v. Washington (Boldt Decision)* 1974), as well as Indigenous pre-existing treaties with the crown (Canada) or federal government (U.S.) (Asch, 2014; Cosens, 2012).

A number of other important court cases in both Canada and the U.S. have influenced the evolution of federal and provincial/state interaction with Indigenous governments, including *R. v. Sparrow* (1990), *Delgamuukw v. British Columbia* (1997), *Sohappy v. Smith/U.S. v. Oregon* (1969).⁸ The changing legal landscape has bolstered certain Indigenous rights and resulted in “the gradual opening of space in which the enactment and expansion of a genuinely Indigenous practice of governance has become more possible” (Cornell, 2013, p. 41). Emerging legal responsibilities and the legal recognition of First Nations and Tribal rights in the basin is crucial to influencing Canadian and U.S. governments to seriously consider Indigenous perspectives regarding the CRT.

Complimentary to the institutional power of Indigenous nations in the Columbia River basin is an evolution in the institutional power of local actors through an increase in widespread public concern over environmental issues during the North American environmental movement in the 1960s and 1970s (e.g., first Earth Day celebrations in 1970) (Egri & Herman, 2000), and the eventual advances in regulation and legislation that reflect these concerns (e.g., U.S. *National Environmental Policy Act* of 1969, and Canada’s *Environmental Assessment Act* of 1992) (Booth & Halseth, 2011). To illustrate this change, there have been developments in environmental laws since the CRT was signed, including the U.S. *National Environmental Policy Act* (1969), *Endangered Species Act* (ESA) (1973), and *Northwest Power Act* (1980), and Canada’s *Environmental Assessment Act* (1992) and *Species at Risk Act* (2002), to name a few. In practice, we can see evidence of the shift in the legal landscape concerning environmental issues in the requirement to undertake environmental impact assessments (EIAs) to determine if potential projects are in the “public interest”, and which provide for public participation in these processes (the effectiveness of which is critiqued and contested in the EIA literature) (Hourdequin, Landres, Hanson, & Craig, 2012; Jay, Jones, Slinn, & Wood, 2007; O’Faircheallaigh, 2010; Sadler, 1986; Salomons & Hoberg, 2014). Regarding Indigenous engagement, Booth and Skelton (2011, p. 368) describe federal and provincial environmental assessment processes as “problematic”, and “fail its indigenous peoples”. What is clear is development of dams and reservoirs on the Columbia River system today would face a very different political and legal environment than what existed when the CRT was first signed.⁹

5.2. *Evolving Societal Values*

A second theme concerns evolving societal values, indicating a priority issue amongst interviewees and individuals in the basin for a modernized treaty is recognition of ecological values, including riparian health and salmon reintroduction into the upper Columbia basin.

⁸ We are not legal experts and do not seek to provide an expansive account of these historical legal cases.

⁹ A cursory review of media surrounding Site C dam in British Columbia exemplifies the complexity of large-scale resource development today.

We can see the evolution of societal values as a bottom up process, whereby a few key mechanisms enabled these societal values to influence the agenda for a modernized CRT. We do not claim environmental concerns amongst basin residents were absent during the original negotiations of the CRT. It has been documented that residents held strong emotional connections to the environment, expressed during the BC Hydro licence hearings of the early 1960s (Swainson, 1979). Fostering environmental well-being in the Canadian portion of the Columbia River basin was one of the drivers of the founding of the Columbia Basin Trust in the 1990s (Columbia Basin Trust, 2017). However, this shift in social values ascribed to the river have helped frame the agenda and the issues to be included in a modernized CRT, compared to when the CRT was first signed.

From 2011 until 2013, the Province of British Columbia conducted a review of the CRT to evaluate potential future directions for a modernized Treaty. Through 23 community events over four phases of public consultation in the Columbia basin, residents had an opportunity to express their concerns and perspectives regarding what a modernized CRT should include. Environmental values were identified as a priority concern. A March 2014 *Columbia River Treaty Review Public Consultation Report* concluded, “Most Basin residents believe recommendations for the future of the Treaty need to address ecosystems” (Province of British Columbia, 2014, p. 16).

In 2011 local governments in the B.C. Columbia basin formed the Columbia River Treaty Local Governments Committee (LGC). The LGC also gathered input from basin residents and developed a series of 19 Recommendations that were submitted in December 2013 to the provincial and federal governments for incorporation into decisions about the future of the CRT. Specifically, the LGC Recommendation states, “Basin residents support incorporation of ecosystem function as a first-order value within the Treaty, along with flood control and power production” (Local Governments Committee, 2013, p. 4).

Together, the inputs received from basin residents to the LGC (and submitted to the Provincial Treaty Review Team), as well as the Province of British Columbia’s own Treaty Review process illustrate the change in perspective of what the modernized Treaty should include, compared to the original CRT. The Province explicitly acknowledges ecosystem considerations as part of its recommendation to the federal government, stating “Ecosystem values are currently, and will continue to be, an important consideration in the planning and implementation of the Treaty” (Province of British Columbia, 2014, p. 3). This recommendation illustrates the influence of an evolution of societal values towards the environment on CRT modernization, and is a significant change in government position since the CRT was first signed.

Awareness of the connection between nature, technology and lifestyles has precipitated a change in social values towards the environment, with significant implications for environmental and sustainability policy (Hards, 2011). New environmental norms and laws have generally reflected an evolution of ecological thinking among legislators and the general public in countries around the world (Cosens, 2016; Gunningham, 2009; Khagram, 2004). Such an evolution of environmental discourse since the signing of the CRT suggests one might expect environmental issues to inform the framing of CRT modernization and

the practices of state agencies performing Treaty review. An interviewee with a regional organization in the U.S. explained the evolution of environmental issues since the treaty was signed, and the centrality of fish and wildlife to river governance and management,

“we have spent the last 30 years on the U.S. side integrating ecosystem issues, ecosystem functions, fish and wildlife issues, into decision-making . . . There is no doubt that on the U.S. side by law and policy . . . fish and wildlife are an equal player” (CB15S31).

An evolution in societal values towards the environment has informed the framing of a modernized CRT. An interviewee stated, “. . . how we think about rivers is different today than it was 60 years ago” (CB22S32). Another interviewee working with a regional organization in the basin also reflected on changing values in the system, stating, “you can’t fault B.C. Hydro, or the BPA, or the Army Corp of Engineers . . . for what they were mandated to do . . . It’s just that today’s values are changing” (CB6S17).

Despite a broad shift of social values towards ecological considerations, there are many laws and treaties globally that do not account for environmental values. Understanding what makes the context of the CRT modernization unique, where environmental values have gained centre stage in discussions on possible Treaty renegotiation becomes important. To help understand this, we can look to the role of Indigenous nations to mobilize productive forms of power to *frame the issues* and *work collaboratively across the international border* to set the agenda for a modernized Treaty.

5.3. Issue Framing

The productive power of Indigenous nations to frame the agenda for CRT modernization was highlighted during the U.S. Sovereign Review Process. The Review included consultation between representatives of four Northwest states (Idaho, Montana, Washington, Oregon), 15 Tribal governments and 11 federal agencies (U.S. Entity, 2013). The Sovereign Review Process, created following Tribal meetings with the U.S. Entity in July 2010, developed a collaborative and consensus based set of recommendations to the U.S. State Department, which incorporated ecosystem-based function as a co-equal pillar to power and flood risk management in the draft renegotiation position (Heffernan, 2016). Reflecting on the process through which the Tribes in the U.S. participated in treaty review, an interviewee with a Tribal-led organization argued,

“the Tribes said, ecosystem-based function needs to be part of a modern treaty. And, fish passage and reintroduction is an integral part of that . . . So, it was the Tribes that said we are not going to have a regional consensus unless ecosystem-based function is part of the recommendation, unless fish passage reintroduction is recognized as being part of ecosystem-based function” (CB23S41).

An interviewee with a U.S. Federal Agency described the reaction from the Tribes when approached in 2010 by the U.S. Entity to take part in CRT review. S/he states the Tribes affirmed “we want the treaty implementation to include some consideration of environmental and ecological values . . . we want the U.S. Entity to make sure we have some sort of ecosystem function in the treaty” (CB25S29). The interviewee further stated many U.S. federal agencies, such as the Fish and Wildlife Services and the Environmental

Protection Agency, were “following the Tribes lead on this” pushing for ecosystem-based function to be a primary driver of a modernized CRT (CB25S37).

Tribes and First Nations have adopted the term “ecosystem-based function”, particularly in their joint efforts at fish reintroduction and fish passage. As seen in recommendations to their respective federal governments, both the U.S. Entity and the Province of British Columbia, adopted the language of ecosystem benefits and values. The Provincial *Recommendations* use ‘ecosystem values’ and ‘ecosystem-based improvements’ to identify the importance of ecosystem considerations within Treaty modernization. The U.S. Entity explicitly used the language of ‘ecosystem-based function’ in its recommendations to the State Department, providing evidence of the direct impact of the Indigenous nations to set the agenda and frame the issues for CRT modernization. This statement is a significant shift in the position of the U.S. Entity. A 2009 Bonneville Power Administration report described the CRT review as primarily concerned with hydropower and flood control. The paper identified “fish and wildlife” as “additional interests”, but that “it is important for both countries to first understand the implications of continuing or terminating the Treaty for the original components of the Treaty, power and flood control” (U.S. Entity, 2009, p. 8). Since that time, “additional interests” have become more central to discussions, with ecosystem-based function recognized as a primary objective of CRT modernization, as per the preference of Indigenous nations stated earlier.

In particular, we can see the influence of issue framing by Indigenous nations in the discourse around modernization of the CRT in a letter sent by the U.S. State Department to Senator Murray of the Northwest Congressional Delegation, dated May 20, 2015, in which the department explicitly acknowledged “based on the [U.S. Regional] Recommendation, we have decided to include flood risk mitigation, *ecosystem-based function*, and hydropower generation interests in the draft U.S. negotiating position” (Fritfield, 2015, p. 1 [emphasis added]). The use of these terms, and identification of ecosystem issues as a key element of a modernized treaty, is a useful measure of the success of productive power of Indigenous nations over the course of the treaty review.

Ecosystem-based function is not a new idea, as it has been partially addressed in various side-agreements to the CRT, or in initiatives at various scales along the river (i.e., First Nations and Tribes co-developed *Fish Passage and Reintroduction Report*, 2015). But, if ecosystem-based function were included in a modernized CRT as a primary objective, this would be a new direction, giving formality to these values at the international scale. The following section discusses the collaborative transboundary initiatives Indigenous nations and Indigenous-led organizations engaged in helping shape the agenda of a modernized CRT.

5.4. *Transboundary Collaboration*

Indigenous-led initiatives for salmon restoration and reintroduction to the upper part of the Columbia basin illustrate the mobilization of productive power through transnational collaborative efforts to shape the agenda for a modernized CRT to include ecosystem-based function (CRITFC, 2013). At the same time, these cross border initiatives illustrate a shift towards a multi-level governance system working *across* nation-state borders.

An interviewee with an Indigenous-led organization explains the transboundary initiatives in which First Nations and Tribes have engaged to promote ecosystem-based function as part of a modernized CRT:

“we have had a number of U.S. Tribal-Canadian First Nations meetings around the renewal of the CRT. We have to build mechanisms for Tribes and First Nations to work together on various CRT scenarios. . . . the concept of ecosystem function is a key

component of the treaty, and perhaps a co-equal purpose of the treaty, is one developed first among the U.S. Tribes, but then it’s something Canadian First Nations have endorsed and supported. And so now the need between First Nations and Tribes is to come up with some shared transboundary ecosystem function scenarios” (CB19S20)

A First Nation interviewee pointed to the strength of the collaboration between First Nations and Tribes in the basin over time, driving the issue of salmon restoration as a key part of ecosystem-based function for the Columbia River. S/he states,

“our relationship and work and dealings with other First Nations and Tribal governments . . . has really pushed the salmon restoration issue forward as well because we are leveraging our own funding to do these studies, and to push forward whether Canada and BC are with us or not. We are doing it anyway. And, I think there is strength in [working] with the other Indigenous nations to do that together” (CB24S15).

As stated above, Indigenous nations are “pushing forward” irrespective of the positions of federal or provincial governments. Yet, as an interviewee with a First Nations organization explained, the different legal environments dividing Tribes and First Nations at the 49th parallel mean, “actions that U.S. Tribes can take can’t always be paralleled by what Canadian First Nations might take . . . because of the different legal context” (CB19S38). Despite this, efforts to advance ecosystem-based function – including salmon reintroduction to the upper Columbia River – can also be seen to represent broader efforts at Indigenous solidarity in addressing shared interests across borders.

An example of transboundary collaboration and the mobilization of productive power by Indigenous nations to promote recognition of ecosystem-based function is the First Nations-Tribal co-developed *Fish Passage and Reintroduction into the U.S. and Canada Upper Columbia Basin* report (CCRIFC & CRITFC, 2015). Although developed after initiation of CRT review, the Fish Passage report aims to influence the direction of CRT renegotiations by calling for modernization of the CRT to include ecosystem-based function. A key element of the report is fish passage for native anadromous salmon and resident fish into the Canadian section of the Columbia River past dams blocking migrating salmon on the Columbia River mainstem, specifically Chief Joseph and Grand Coulee dams in the U.S. and Hugh Keenleyside, Brilliant, and Waneta dams in Canada (CCRITC & CRITFC, 2015). The Report provides an important illustration of the mobilization of the productive power of Indigenous nations across the 49th parallel by contributing to defining the problem related to historic and current governance and management of the transboundary Columbia River and proposing an adaptive co-management approach to achieve goals set out in the report.

Through the transboundary salmon restoration and reintroduction work between First Nations and Tribes, and through Indigenous engagement with state, provincial, and federal governments during CRT review, as well as court affirmed and modern and historical treaties, we can see the institutional and productive power of Indigenous nations has contributed to defining the problem of narrow governance and management frameworks for the Columbia River. Throughout these initiatives, First Nations and Tribes have also been explicit about their autonomy from state-based decisions or interests, collaborating across colonial borders to progress and restore ecosystem-based function to the Columbia River. These cross border initiatives illustrate limits of state-centric models of politics – with their assumptions of nation-state power and territoriality – to include decentralized Indigenous ecological and political initiatives and practices of governance.

6. Discussion

Through the use of Barnett and Duvall's (2005) framework on power, our evidence suggests the evolution of institutional power and the mobilization of productive power of Indigenous nations and local actors have influenced the discourse for CRT modernization to include consideration for ecosystem issues. The current negotiating priorities of the U.S. federal government explicitly includes ecosystem-based function as a primary objective of a modernized CRT. Less certain is the explicit recognition by the government of Canada to position ecosystem values as a primary objective of a modernized CRT *within* the existing institutional structure of the Treaty. Irrespective of the starting position of the federal governments for renegotiation of a modernized CRT, if Indigenous nations and non-state representatives are invited to the negotiating table as part of a renegotiation team for either nation-state, or given a formal role in the implementation of a modernized CRT, this may signify a redefinition of the sovereign state model. We see a multi-level process that has included mechanisms for Indigenous nations and local actors to exert influence and shape the direction for CRT modernization. Transboundary collaboration involved Indigenous nations across the 49th parallel working on initiatives to reintroduce anadromous fish to the upper Columbia basin. These transboundary collaborations have helped redefine the constraints on engineering and operational factors determining water resource use in the Columbia River, and provide clarity on the application of ecosystem-based function in practice.

Globally, scholars have called for innovations in governance of environmental systems (Garrick, Lane-Miller, & McCoy, 2011; Moore, von der Porten, Plummer, Brandes, & Baird, 2014; Scarlett, 2012) to address the complex and interconnected socio-ecological challenges resulting from accelerated global climate change and shifting hydrological regimes that will increase stream flow variability and disrupt water management systems (Hatcher & Jones, 2013; van Vliet et al., 2013). Innovations in water governance are also needed to address challenges from growing populations increasingly reliant on water-intensive goods and services. And, as Berkes (2017) argues, innovations should be a priority for multi-level collaborative approaches to (trans)national environmental governance. Adaptive and multi-level governance frameworks that build resilience into governance systems, encourages

flexibility and experimentation, and recognizes and embraces the value of multiple systems of knowledge (Akamani & Wilson 2011) provides principles for institutional changes in the governance of transboundary waters that can respond to unpredictability associated with complex socio-ecological systems.

New institutional structures that are responsive to and embrace the nation-to-nation relationship of Indigenous nations and federal governments, and position Indigenous nations as full partners in CRT renegotiation and implementation can signal a transformation in how transboundary water governance processes are defined, and who is empowered to enact and implement decisions. Indigenous nations have called for direct representation on the negotiating team and a formal role in implementation of a modernized CRT to ensure ecosystem-based function is given a voice, alongside hydropower and flood risk management, within a modernized CRT. This suggests a further redefinition of state-centric governance systems, to provide opportunities for meaningful collaboration and co-creation of future governance models. In essence, innovations for transboundary water governance are needed.

7. Conclusion

The limited focus of the original CRT on flood risk management and hydropower, and the associated historical and on-going socio-ecological impacts in the basin, has contributed to calls for modernization of the treaty to include ecosystem values and represent a wider set of interests. But, with formal renegotiations not yet started, and an ever-changing political landscape at federal levels for both Canada and the U.S. as they embark on NAFTA negotiations, it is still uncertain what the renegotiation agenda will include, how the issues will be officially framed, and who will be part of the renegotiation team. This lends certain fragility to our findings, as we are ultimately unable to conclude with certainty the conditions of official renegotiation for CRT modernization, including who will be ‘at the table’, or the outcome of these official talks, as well as who will be the voice for ecosystem-based function in a modernized CRT.

We find Barnett and Duvall’s (2005) conceptions of power provides a robust framing for the themes that emerged from our analysis. We also recognize the limitations and risks inherent in using concepts developed by international relations theorists to discuss activities of Indigenous nations and organizations, given the difficulty of aligning conceptions of power from a Euro-Western perspective with Indigenous-led initiatives. Although we do not attempt to represent Indigenous claims on power and sovereignty, we find that through this typology, Indigenous nations and local actors mobilized institutional and productive power that contributed to shaping the current and on-going efforts to modernize the 54-year old Columbia River Treaty. Although primarily focused on hydropower and flood risk management, the position of the U.S. and Canadian Entities and the recommendations provided to their respective federal governments, suggests Indigenous nations and local actors have helped frame CRT modernization to include other priorities, including ecosystem considerations. However, their influence has had unequal impacts across the Canada-U.S. border. The U.S. Entity has explicitly recognized ecosystem-based function as a primary objective

of a modernized Treaty, whereas the Canadian Entity negotiation position states such interests can be reached *within* the current structure of the Treaty (with its priority on flood risk management and hydropower). Despite the apparent difference in starting positions for renegotiations, it is important to note that each side does recognize that changes are needed to the Treaty, in line with a diverse set of values in the basin, and in recognition of historical injustices resulting from the development of the original treaty and related infrastructure.

If innovations in transboundary water governance are needed, the Columbia River case illustrates the influence that Indigenous nations and non-state actors have on traditionally state-centric governance processes, signaling a redefinition of who is to be included in decision-making processes, and how values, interests, and priorities are defined for waters flowing across borders. Such influences have drawn transboundary water governance towards consideration of ecosystem values and inclusion of voices and interests beyond state-based actors within the confines of formal diplomacy. Through the mobilization of different forms of power of Indigenous nations and non-state actors, new institutional frameworks might emerge that signal an evolution away from what Conca (2006, p. 374) has called “a fading era of pushing rivers around”, representing a significant shift from a decades old paradigm in state-based transboundary governance. Transboundary water governance and management institutions are increasingly reflecting the diversity of norms, interests, and values in shared river basins beyond state regimes, a devolution of authority away from the state, as well as recognizing and responding to the global water crisis rooted in narrowly conceived ways of manipulating water. It is through the nurturing of such changes that institutional frameworks can evolve to address complexity in transboundary river basins globally.

Acknowledgements

We wish to thank Dr. Michael Webb for his invaluable comments and review during the development of this article. We also wish to thank the two anonymous reviewers for their valuable feedback. All mistakes and omissions are the authors alone. Funding for this research came from the Water, Economics, Policy and Governance Network (WEPGN), funded by a Social Sciences and Humanities Research Council (SSHRC) Partnership Grant. The authors would like to acknowledge the Centre for Global Studies at the University of Victoria for providing an interdisciplinary academic affiliation, and for providing a community network for knowledge sharing.

References

- Akamani, K., & Wilson, P. I. (2011). Toward the adaptive governance of transboundary water resources. *Conservation Letters*, 4(6), 409–416. doi:10.1111/j.1755-263X.2011.00188.x
- Anderson, G., & Grinberg, J. (1998). Educational administration as a disciplinary practice: Appropriating foucault's view of power, discourse, and method. *Educational Administration Quarterly*, 34(3), 329–353. doi:10.1177/0013161X98034003004
- Arts, B. (2003). *Non-state actors in global governance: Three faces of power*. Retrieved from http://www.coll.mpg.de/pdf_dat/2003_4.pdf

- Asch, M. (2014). *On being here to stay: Treaties and aboriginal rights in Canada*. Toronto, Canada: University of Toronto Press.
- Bachrach, P., & Baratz, M. S. (1962). Two faces of power. *American Political Science Review*, 56(4), 947–952. doi:10.2307/1952796
- Barnett, M., & Duvall, R. (Eds.). (2005). *Power in global governance*. Cambridge, England: Cambridge University Press.
- Barnett, T. P., Pierce, D. W., Hidalgo, H. G., Bonfils, C., Santer, B. D., Das, T., . . . Dettinger, M. D. (2008). Human-induced changes in the hydrology of the western United States. *Science*, 319(5866), 1080–1083. doi:10.1126/science.1152538
- Berkes, F. (2017). Environmental governance for the anthropocene? Social-ecological systems, resilience, and collaborative learning. *Sustainability*, 9(7), 1232. doi:10.3390/su9071232
- Betsill, M. M., & Corell, E. (2008). *NGO diplomacy: The influence of nongovernmental organizations in international environmental negotiations*. Cambridge, MA: The MIT Press.
- Blatter, J., & Ingram, H. (2000). States, markets and beyond: Governance of transboundary water resources. *Natural Resources Journal*, 40, 439–473.
- Bleser, C., & Nelson, K. (2011). Climate change and water governance: An International Joint Commission case study. *Water Policy*, 13, 877–894. doi:10.2166/wp.201
- Bode, T. G. (2017). A modern treaty for the Columbia River. *Environmental Law*, 47(81), 81–124. Retrieved from <https://law.lclark.edu/live/files/23904-47-1bodepdf>
- Boonstra, W. J. (2016). Conceptualizing power to study social-ecological interactions. *Ecology and Society*, 21(1), 21. doi:10.5751/ES-07966-210121
- Booth, A., & Halseth, G. (2011). Why the public thinks natural resources public participation processes fail: A case study of British Columbia communities. *Land Use Policy*, 28, 898–906. doi:10.1016/j.landusepol.2011.03.005
- Booth, A., & Skelton, N. W. (2011). “We are fighting for ourselves”—First Nations’ evaluation of British Columbia and Canadian environmental assessment processes. *Journal of Environmental Assessment Policy and Management*, 13(3), 367–404. doi:10.1142/S1464333211003936
- Brambilla, C. (2015). Exploring the critical potential of the borderscapes concept. *Geopolitics*, 20(1), 14–34. doi:10.1080/14650045.2014.884561
- Brown, C. (2015). Scale and subnational resource management : Transnational initiatives in the Salish Sea region. *Review of Policy Research*, 32(1), 60–78.
- Canadian Columbia River Inter-tribal Fisheries Commission & Columbia River Inter-Tribal Fish Commission. (2015). *Fish passage & reintroduction into the U.S. & Canadian upper Columbia Basin*. Retrieved from https://ucut.org/wp-content/uploads/2016/09/Fish_Passage_and_Reintroduction_into_the_US_And_Canadian_Upper_Columbia_River4-1.pdf
- Chiovitti, R. F., & Piran, N. (2003). Rigour and grounded theory research. *Journal of Advanced Nursing*, 44(4), 427–435. doi:10.1046/j.0309-2402.2003.02822.x
- Clamen, M., & Macfarlane, D. (2015). The International Joint Commission, water levels, and transboundary governance in the Great Lakes. *Review of Policy Research*, 32(1), 40–59. doi:10.1111/ropr.12107
- Clegg, S. (1989). *Frameworks of Power* (5th ed.). London, England: Sage Publications.
- Columbia Basin Trust. (2017). *Our story*. Retrieved from: <https://ourtrust.org/about/our-story/>
- Columbia River Inter-Tribal Fish Commission. (2013, June). *Ecosystem-based function integration into the Columbia River Treaty: Columbia Basin Tribes’ concept*. Retrieved from <http://www.critfc.org/wp-content/uploads/2014/12/ecosystem-booklet-single-page.pdf>
- Columbia River Inter-Tribal Fish Commission. (2016). *Columbia Basin passage barriers* [map]. Retrieved from <http://www.critfc.org/tribal-treaty-fishing-rights/policy-support/columbia-river-treaty/area-blocked-salmon-columbia-basin>
- Columbia River Inter-Tribal Fish Commission. (2017). *Ecosystem-based function* (paragraph 1). Retrieved from <http://www.critfc.org/tribal-treaty-fishing-rights/policy-support/columbia-river-treaty/definition-of-ecosystem-based-function>
- Columbia River Treaty. (1964). *The Columbia River Treaty protocol and related documents, Canada-United States, September 16, 1964*. Retrieved from https://ourtrust.org/wp-content/uploads/delightful-downloads/Columbia_River_Treaty_Protocol1964.pdf

- Conca, K. (2006). *Governing water: Contentious transnational politics and global institution building*. Cambridge, MA: The MIT Press.
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Cornell, S. (2013). Reconstituting native nations: Colonial boundaries and institutional innovation in Canada, Australia, and the United States. In R. Walker, T. Jojola, & D. Natcher (Eds.), *Reclaiming indigenous planning* (pp. 35–59). Montreal Canada: McGill-Queen's University Press.
- Cosens, B. (2012). Resilience and law as a theoretical backdrop for natural resource management: Flood management in the Columbia River Basin. *Environmental Law*, 42. doi:10.1525/sp.2007.54.1.23
- Cosens, B. (2016). The Columbia River Treaty: An opportunity for modernization of basin governance. *Colorado Natural Resources, Energy & Environmental Law Review*, 27(1), 27–42. Retrieved from http://www.colorado.edu/law/sites/default/files/CNREELR-V27-11-Cosens_Final_0.pdf
- Cosens, B. (Ed.). (2012). *The Columbia River Treaty revisited: Transboundary River governance in the face of uncertainty*. Corvallis, OR: Oregon State University Press.
- Dahl, R. A. (1957). The concept of power. *Systems Research and Behavioral Science*, 2(3), 201–215. doi:10.1002/bs.3830020303
- Egri, C. P., & Herman, S. (2000). Leadership in the North American environmental sector: Values, leadership styles, and contexts of environmental leaders and their organizations. *The Academy of Management Journal*, 43(4), 571–604. Retrieved from <http://www.jstor.org/stable/pdf/1556356.pdf>
- Finger, M., Tamiotti, L., & Allouche, J. (Eds.). (2006). *The multi-governance of water: Four case studies*. Albany, NY: SUNY Press.
- Fritfield, J. (2015, May). Letter to Senator Murray, U.S. Senate. *Northwest Power and Conservation Council*. Retrieved from <https://www.nwcouncil.org/history/ColumbiaRiverTreaty>
- Garrick, D., Lane-Miller, C., & McCoy, A. L. (2011). Institutional innovations to govern environmental water in the western United States: Lessons for Australia's Murray–Darling Basin. *Journal of Applied Economics and Policy*, 30(2), 167–184 Retrieved from doi:10.1111/j.1759-3441.2011.00104.x
- Glaser, B., & Holton, J. (2004). Remodeling grounded theory. *Forum: Qualitative Social Research*, 5(2). Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/view/607/1315Volume#g33>
- Gunningham, N. (2009). Environment law, regulation and governance: Shifting architectures. *Journal of Environmental Law*, 21(2), 179–212. doi:10.1093/jel/eqp011
- Hards, S. (2011). Social practice and the evolution of personal environmental values. *Environmental Values*, 20(1), 23–42. Retrieved from <http://www.jstor.org/stable/23048347>
- Harrison, J. (2008, October 31). Dams: Impacts on Salmon and Steelhead. *Northwest Power and Conservation Council*. Retrieved from <https://www.nwcouncil.org/history/DamsImpacts>
- Hatcher, K. L., & Jones, J. A. (2013). Climate and streamflow trends in the Columbia River Basin: Evidence for ecological and engineering resilience to climate change. *Atmosphere-Ocean*, 51(4), 436–455. doi:10.1080/07055900.2013.808167
- Hay, C. (1997). Divided by a common language: Political theory and the concept of power. *Politics*, 17(1), 45–52. Retrieved from https://www.researchgate.net/profile/Colin_Hay2/publication/229647944_Divided_by_a_common_language_Political_theory_and_the_concept_of_power/links/54411c790cf2e6f0c0f5fe66.pdf
- Hayward, C. (2000). *De-facing power*. Cambridge, England: Cambridge University Press. Retrieved from <http://lib.myilibrary.com/Open.aspx?id=42971>
- Hayward, C., & Lukes, S. (2008). Nobody to shoot? Power, structure, and agency: A dialogue. *Journal of Power*, 1(1), 5–20. doi:10.1080/17540290801943364
- Heasley, L., & MacFarlane, D. (Eds.). (2016). *Border flows: A century of Canada–American water relationship*. Calgary, Canada: University of Calgary Press.
- Heffernan, J. (2016). *Tribal perspectives on the Columbia River Treaty Policy analyst—Columbia River Treaty fostering a culture of abundant salmon since time immemorial*. Portland, OR: Columbia River Inter-Tribal Fish Commission. Retrieved from https://www.usea.org/sites/default/files/event-/CRITC_Overview.pdf
- Hourdequin, M., Landres, P., Hanson, M. J., & Craig, D. R. (2012). Ethical implications of democratic theory for U.S. public participation in environmental impact assessment. *Environmental Impact Assessment Review*, 35, 37–44. doi:10.1016/j.eiar.2012.02.001

- Hurrell, A. (2005). Power, institutions, and the production of inequality. In Barnett, M., & Duvall, R. (Eds). *Power in Global Governance* (pp. 33–58). Cambridge, England: Cambridge University Press.
- Jay, S., Jones, C., Slinn, P., & Wood, C. (2007). Environmental impact assessment: Retrospect and prospect. *Environmental Impact Assessment Review*, 27(4), 287–300. doi:10.1016/J.EIAR.2006.12.001
- Khagram, S. (2004). *Dams and development: Transnational struggles for water and power*. Ithaca, NY: Cornell University Press.
- Lele, S., Springate-Baginski, O., Lakerveld, R., Deb, D., & Dash, P. (2013). Ecosystem services: Origins, contributions, pitfalls, and alternatives. *Conservation and Society*, 11(4), 343–358. doi:10.4103/0972-4923.125752
- Local Governments Committee. (2013). *Columbia River Treaty: Recommendations*. The Columbia River Treaty Local Governments Committee. Retrieved from: <https://thebasin.ourtrust.org/columbia-river-treaty/local-governments-committee/>
- Loo, T. (2004). People in the way: Modernity, environment, and society on the Arrow Lakes. *BC Studies*, 142(January), 161–196.
- Lukes, S. (1974). *Power: A radical view*. London and New York: Macmillan.
- Mathews, J. T. (1997). Power shift. *Foreign Affairs*, 76(1), 50–66. Retrieved from <http://www.jstor.org/stable/20047909>
- Moore, M.-L., & Tjornbo, O. (2012). From coastal timber supply area to Great Bear Rainforest: exploring power in a social-ecological governance innovation. *Ecology and Society*, 17(4), art26. doi:10.5751/ES-05194-170426
- Moore, M.-L., von der Porten, S., Plummer, R., Brandes, O., & Baird, J. (2014). Water policy reform and innovation: A systematic review. *Environmental Science & Policy*, 38, 263–271. doi:10.1016/j.envsci.2014.01.007
- Muckleston, K. (2003). *International management in the Columbia River system*. Retrieved from <http://unesdoc.unesco.org/images/0013/001332/133292e.pdf>
- Myint, T. (2012). *Governing international rivers: Polycentric politics in the Mekong and the Rhine*. Cheltenham, England: Edward Elgar Publishing.
- Nadasdy, P. (2012). Boundaries among Kin: Sovereignty, the Modern Treaty Process, and the Rise of Ethno-Territorial Nationalism among Yukon First Nations. *Comparative Studies in Society and History*, 54(3), 499–532. doi:10.1017/S0010417512000217
- Newman, D., & Paasi, A. (1998). Fences and neighbours in the postmodern world: Boundary narratives in political geography. *Progress in Human Geography*, 22(2), 186–207. doi:10.1191/030913298666039113
- Norman, E. (2015). *Governing transboundary waters: Canada, the United States, and indigenous communities*. New York: Routledge.
- Norman, E., Cohen, A., & Bakker, K. (Eds.). (2013). *Water without borders? Canada, the United States, and Shared Waters*. Toronto, Canada: University of Toronto Press.
- O’Faircheallaigh, C. (2010). Public participation and environmental impact assessment: Purposes, implications, and lessons for public policy making. *Environmental Impact Assessment Review*, 30(1), 19–27. doi:10.1016/j.eiar.2009.05.001
- Paisley, R., McKinney, M., & Stenovec, M. (2015). A sacred responsibility: Governing the use of water and related resources in the International Columbia Basin through the Prism of Tribes and First Nations. *Public Land and Resources Law Review*, 37, 1.
- Province of British Columbia. (2014, March). *Columbia River Treaty Review: Public Consultation Report*. Retrieved from http://engage.gov.bc.ca/app/uploads/sites/6/2017/01/Columbia-River-Treaty-Review-Public-Consultation-Report_March-2014.pdf
- Sadler, B. (1986). The management of Canada–U.S. Boundary Waters: Retrospect and prospect. *Natural Resource Journal*, 26(1979), 359–375.
- Salomons, G. H., & Hoberg, G. (2014). Setting boundaries of participation in environmental impact assessment. *Environmental Impact Assessment Review*, 45, 69–75. doi:10.1016/j.eiar.2013.11.001
- Scarlett, L. (2012, May). Managing water : Governance innovations to enhance coordination. *Resources for the Future*, Issue Brief. Retrieved from <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-IB-12-04.pdf>
- Sinixt Nations. (2016). *Timeline*. Retrieved from <http://sinixtnation.org/content/timeline>
- Stark, H. K. (2013). Nenabozho’s smart berries: Rethinking tribal sovereignty and accountability. *Michigan State Law Review*, 339–354. Retrieved from <http://www.uvic.ca/socialsciences/politicalscience/assets/docs/faculty/stark/msu-law-review-nenabozhos-smartberries.pdf>

- Swainson, N. (1979). *Conflict over the Columbia: The Canadian background to an historic treaty*. Montreal, Canada: McGill-Queen's University Press.
- Thompson, A., Palleson, M., & Lemon, C. (1996). *Loss of the Columbia River First Nations Fishery: Review of the potential for legal action against the federal government*. Retrieved from <http://ccrffc.org/cms/wp-content/uploads/2015/10/Loss-of-the-Columbia-River-First-Nations-Fishery-Review-of-the-Potential-for-Legal-Action-Against-the-Federal-Government.pdf>
- Toller, S., & Nemetz, P. (1997). Assessing the impact of hydro development: A case study of the Columbia River Basin in British Columbia. *BC Studies*, (114).
- U.S. Entity. (2009, February). *Columbia River Treaty: History and 2014/2024 review*. Retrieved from <https://www.bpa.gov/news/pubs/GeneralPublications/crt-Columbia-River-Treaty-History-and-2010-2024-Review.pdf>
- U.S. Entity. (2013, April). *Columbia River Treaty 2014/2024 review*. Retrieved from <https://www.crt2014-2024review.gov/Files/Columbia%20River%20Treaty%20Review%20-%20Ecosystem%20--%20FOR%20PRINT.pdf>
- van Vliet, M. T. H., Franssen, W. H. P., Yearsley, J. R., Ludwig, F., Haddeland, I., Lettenmaier, D. P., & Kabat, P. (2013). Global river discharge and water temperature under climate change. *Global Environmental Change*, 23(2), 450–464. doi:10.1016/J.GLOENVCHA.2012.11.002
- Vogel, E. (2012). Parcelling out the watershed: The recurring consequences of organising Columbia River management within a basin-based territory. *Water Alternatives*, 5(1), 161–190. Retrieved from <http://www.water-alternatives.org/index.php/alldoc/articles/vol5/v5issue1/163-a5-1-10/file>
- Windsor, J. E., & Mcvey, J. A. (2005). Annihilation of both place and sense of place: The Experience of the Cheslatta T'En Canadian First Nation within the context of large-scale environmental projects. *The Geographical Journal*, 171(2), 146–165. Retrieved from <http://www.jstor.org/stable/3451365>

Appendix

A: List of workshops, conferences, and events on Columbia River Treaty modernization attended by principal author

Date	Name, location
October 7–8, 2015	<i>Columbia River Treaty: Past, Present and Future</i> Osoyoos, BC
January 14, 2016	<i>Can the Columbia River Treaty Call the Salmon Home?</i> Nelson, B.C.
October 18–20, 2016	<i>Future of Our Salmon</i> Oregon Convention Center, Portland, Oregon
February 22–23, 2017	<i>The Changing Environment & the Columbia River Treaty</i> Northwest Indian College & Western Washington University, Bellingham, Washington
November 6–7, 2017	<i>Fresh Ideas in Freshwater Communication – Columbia Basin Watershed Network</i> Cranbrook, BC

